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September 20, 2026

Industrus Engineering
Graduate Recruitment
Australia

Application: Graduate Engineer Program

Dear recruiting team,

I am a final year Mechanical Engineering student at the University of Technology Sydney, currently working as a Product Design Engineer at Inventor Group, where I lead and support the development of new products across a range of markets and manufacturing processes. I am writing to apply for the Graduate Engineer Program at Industrus Engineering. The opportunity to rotate across consulting projects of the scale and diversity you describe, from advising on Australia's largest lithium-ion battery installation to restoring transport access after natural disasters, is precisely the kind of early-career breadth I am looking for. Consulting engineering asks graduates to move quickly between unfamiliar problems, communicate across disciplines, and hold themselves to a high standard regardless of the project, and my academic training, industry experience and personal projects have consistently pushed me to develop exactly those capabilities. Below, I address each of the six selection criteria in your advertisement in turn.

3.1 A commitment to ethical conduct and the highest standards of professional accountability

During my internship at Xero Linear Lighting Systems I was responsible for producing manufacturing drawings and bills of materials that went directly to global clients before parts were released to production. The task carried real weight: an error in a drawing or a missed revision in a BOM could mean the wrong component being ordered, a delay reaching a client, or in the worst case a part being manufactured incorrectly and installed somewhere it should not have been. I treated every drawing as though it would be built exactly as issued, because it would be. On more than one occasion I caught inconsistencies between a drawing and its corresponding BOM before they left the office, and rather than quietly correcting them and moving on, I flagged the discrepancy to the lead engineer so the root cause could be traced and fixed, not just the symptom. That sometimes meant admitting I had made the error myself, and choosing to say so rather than let it slide. I have carried that same standard into my current role at Inventor Group, where I am often the person closest to the detail on a design, and where clients and manufacturing partners are relying on my sign-off being accurate rather than convenient. Accountability, to me, is not a value I hold in the abstract; it is a habit built from checking my own work critically, admitting when something is wrong, and being willing to slow a project down rather than let a mistake reach a client or a factory floor.

3.2 Demonstrated ability to effectively communicate both with other engineers and with stakeholders from different fields

Outside of my studies I volunteer as a developer on the technical drawing workbench for FreeCAD, an open-source CAD application used by engineers, hobbyists and educators worldwide. Contributing to a live, community-maintained codebase means every change I propose is reviewed by experienced C++ developers whose feedback can be technically demanding, and I have had to learn to write clear commit messages, document my reasoning, and accept critique without treating it personally. At the same time, the workbench is used by people with a huge range of technical backgrounds, from professional engineers to students opening a CAD program for the first time, so explaining a new feature in the project's documentation or an issue tracker means translating implementation detail into plain, usable language. At Inventor Group I use the same skill daily but in the opposite direction: taking technical constraints, whether from manufacturing tolerances, material behaviour or regulatory requirements, and explaining them to clients and industrial designers who do not have an engineering background, in terms that let them make an informed decision rather than simply trust me. I have learned that communicating well with a fellow engineer and communicating well with a non-technical stakeholder are genuinely different skills, and that being effective in a consulting environment means being able to move fluently between both, often within the same afternoon.

3.3 The ability to engage with a creative, innovative and proactive environment

I have a hard time walking past an inefficient process without trying to fix it. During my internship, I noticed that the process for generating drawing pages from Rhino3D models was entirely manual, taking a member of the drawing office up to an hour per job, and prone to small formatting inconsistencies between drawings produced by different people. Nobody asked me to address it, but I wrote a Python script that automated the layout and export process, reducing the time required to under a minute and making every drawing consistent regardless of who ran it. The department is still using that script. My capstone project reflects the same instinct on a larger scale. Rather than adapting an existing tool, I designed and built a Design for Manufacturing (DFM) workbench for FreeCAD from the ground up, one that analyses 3D geometry against manufacturing rules for processes such as plastic injection moulding, automatically detecting problems like insufficient draft angles, undercuts, incorrect wall thickness and sharp internal corners before a part ever reaches a factory. Building this required researching manufacturing standards that were not covered anywhere in my degree, and then translating that knowledge into working computational logic using Python and the OpenCASCADE geometry kernel. I did not build it because I was told to; I built it because I could see a genuine gap between what university teaches about manufacturability and what industry actually needs, and I wanted to close it.

3.4 Demonstrated ability to use and manage information

Good engineering decisions depend on information being accurate, current and easy for the right person to find, and I have had to build systems for this rather than just rely on memory. The DFM workbench I built for my capstone does not just flag a problem once and forget it; it keeps a results history so a designer can track whether a given issue has been resolved or has regressed as the model changes through revisions, and it allows the full analysis to be exported to CSV so the data can be reviewed, filed or handed to someone else outside the software itself. I designed it this way deliberately,

because a DFM check that cannot be tracked over time or shared with a colleague is far less useful than one that can. The same discipline mattered at Xero Linear Lighting Systems, where drawings and BOMs had to stay in sync with each other and with the physical parts being produced; a BOM that quietly drifted out of date was exactly the kind of small information failure that could cause a real problem downstream. At Inventor Group, where I frequently work across several concurrent product development projects for different clients at once, keeping accurate and current documentation, whether that is a design history, a set of manufacturing notes, or a simple record of decisions made with a client, is what allows me to hand work between projects without losing track of details or repeating mistakes I have already solved once.

3.5 The ability to manage your own performance in a professional environment

My capstone project ran over an extended period with no fixed weekly deadlines and no one checking my progress day to day, which meant that staying on track was entirely my own responsibility. I broke the project into stages, from researching manufacturing rules, to building the geometric analysis logic, to designing a usable interface for the results, and set my own milestones for each so that I always had a concrete measure of whether I was on schedule. When I hit a technical obstacle, such as reliably detecting undercuts in complex geometry, I had to judge for myself whether to keep pushing on it or to seek help from the FreeCAD developer community, rather than waiting for someone to tell me which was appropriate. I bring the same approach to my current role at Inventor Group, where I am often the person closest to a given product stream and where staying organised about priorities, rather than any external structure, is what keeps several projects moving at once. I have learned to be honest with myself about which tasks are genuinely urgent, to communicate early when a deadline is at risk rather than late, and to hold myself to the same standard of quality whether or not anyone is checking my work that week.

3.6 A demonstrated ability to work as part of a team and to show leadership when required

At Inventor Group, my role explicitly involves leading the development of certain products while supporting colleagues who are leading others, which has taught me that leadership in a small team is less about hierarchy and more about knowing when to take ownership and when to defer to someone else's expertise. On a given project I might be coordinating directly with a client, an industrial designer and an external manufacturing partner, which means being clear about who owns which decision and keeping everyone moving toward the same outcome even when their priorities differ. My work on the FreeCAD DFM workbench has required a similar balance in a very different setting. Publishing a new workbench into an existing open-source project meant working within the norms and expectations of an established team of maintainers and contributors, some of whom have been working on the codebase for years longer than I have. I had to earn trust in that community by writing code that met their standards and by being responsive to feedback, while also taking the initiative to lead the specific area I had created, defining its scope, documenting it and supporting other contributors who wanted to extend it. Both experiences have shown me that being a good team member and being a good leader are not separate skills; the same judgement about when to step up and when to listen underpins both.

I have attached my resume and would welcome the opportunity to discuss my application further.

Yours sincerely,
Ryan Kembrey
