**CPAM Postgraduate Research and Development program application form**

The applicant must hold a minimum of a Masters degree

This program supports research and development projects that address any aspect of the additive manufacturing technology value chain for metal or polymer additive manufacturing. The project proposal should articulate a specific need associated with technology development with a view of advancing the technology towards higher industrial technology readiness levels. The project research theme should be defined as the key focus for a selection of post graduate research projects that each deal with a separate research question, all contributing to a common research theme that supports the industrialisation of additive manufacturing technology.

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| --- |
| **Project Title** |
|  |

# **Applicant Details**

|  |  |
| --- | --- |
| **Name of institution/organisation** |  |
| **Title** |  |
| **Surname** |  |
| **Initials** |  |
| **First name** |  |
| **Citizenship status** |  |
| **Race** |  |
| **Gender** |  |
| **Primary e-mail address** |  |
| **Mobile number** |  |
| **Primary office telephone number** |  |

# **Contact Details**

|  |  |
| --- | --- |
| **Organisation where the applicant are based** |  |
| **Is this the organisation which funds your salary?** |  |
| **Primary organisation which funds your salary** |  |
| **Department/School/ Institution** |  |
| **Work postal address (excluding department)** |  |
| **City/Town** |  |
| **Code** |  |
| **Web address** |  |
| **Country** |  |
| **Province/State** |  |

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# **Project Title**

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# **Abstract**

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| Provide an abstract of the proposed project, the scientific and industrial merit and the anticipated impact. Limit this to 500 words. |
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# **Project Research Theme**

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| Provide a short statement on the research theme and the research questions to be addressed in this project. The research questions should be short, concise and should each address a specific challenge which this project intends to provide a response to. For clarity, a project can be a selection of postgraduate research projects in which case it will consist of a number of research questions which will each be addressed by a separate postgraduate project. |
|  |

# **Market need / Motivation**

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| Capture the market need and/or motivation for your proposal, as perceived at this stage in the context of the South African Additive Manufacturing Strategy. |
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# **Project Background**

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| Provide a description of present state of the art. Refer to work done by yourself, other members within the CPAM network or published by other researchers in the field. |
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# **Project Description**

# **Project Description: Objectives**

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| List all project objectives and their explanations in bullet form. |
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# **Project Description: Project Overview**

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| Give a detailed overview of the project including scientific and technical aims, expected challenges, planned experimental set-ups and equipment required. Please attach diagrams where possible. Max of 5000 words allowed. |
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# **Project Description: Links to industry projects / potential for new startups**

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| Give a detailed overview of how the planned project or sub-projects link to present industrial partners. If applicable indicate which of the planned sub-projects can be considered as seeds for new startups. Max of 5000 words allowed. |
|  |

# **Project Description: Management Plan**

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| Give a high-level plan of how the project will be executed. Refer to own expertise, equipment required, challenges expected and how they will be addressed, planned collaborations. A Gantt chart providing an overview of the project tasks, task durations and milestones must be included in the proposal, as a separate document. **Project proposals without a Gantt chart will be eliminated**. Include comments on laboratory/workshop safety and plans around laser and material safety. Max of 2000 words allowed. |
|  |

# **Project Description: Detailed Management Plan**

Give a detailed plan of how the project(s) will be executed. List all major tasks to be undertaken, including timeframes (start & end date) and resources linked to each task. Describe the task deliverable(s). In cases where your tasks exceed the provided tables, please click on the table mover handle at the top left corner of the table to select it, copy and paste the table below the last tasks to complete this section. The tasks may typically be the main tasks that would constitute the post graduate research projects of the students that will be supported.

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| Task |  |
| Start Date |  |
| End Date |  |
| Deliverables |  |
| Resources |  |

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| Deliverables |  |
| Resources |  |

# **Project Description: Project Research Team**

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| Highlight the Principal Investigator’s (PI) track record. If there are external collaborators involved in the project, please also highlight their roles and contribution in the project in the table below. **Students are listed under the HCD section.** |
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| --- | --- | --- | --- | --- | --- | --- | --- |
| Name | Institution | Appointment  status | Role | Contribution to the project | Demographics | | |
| Gender | Race | Citizenship |
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| **Safety officer appointments** | | | | | | | |
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**Project Risk**

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| Provide a critical assessment of risk that might impact on the execution of this project and how this will be mitigated. | |
| **Risk** | **Mitigation** |
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# **Expected Outputs: Knowledge-based Outputs Summary**

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| --- | --- | --- | --- | --- |
| **Output** | **Year 1** | **Year 2** | **Year 3** | **Total** |
| Journal papers |  |  |  |  |
| Conference papers |  |  |  |  |
| Technology demonstrators[[1]](#footnote-1) / prototypes[[2]](#footnote-2) |  |  |  |  |
| Process documents[[3]](#footnote-3) |  |  |  |  |
| Patents |  |  |  |  |

# **Expected Outputs: Knowledge-based Outputs Detailed Planning**

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| Provide a description of the expected knowledge outputs from the project (eg: publications in highly rated journals, conferences and knowledge products) and provide more detail on the planned outputs in the table below. | | | | |
|  | | | | |
| **Title or proposed title of scientific output planned** | **Potential authors / inventors** | **Planned date** | **Name of publication / Conf / other** | **Status of the output** |
| **Journal articles** | | | | |
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| **Conference papers** | | | | |
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| **Knowledge products** | | | | |
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# **Expected Outputs: Human Capital Development**

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| --- | --- | --- | --- | --- |
| **Description** | **Year 1** | **Year 2** | **Year 3** | **Total** |
| Postdocs supported |  |  |  |  |
| Doctoral students supported |  |  |  |  |
| Master students supported |  |  |  |  |
| **Plans for student graduation** | | | | |
| Doctoral students graduated |  |  |  |  |
| Master students graduated |  |  |  |  |

List all students and staff who will be working towards higher degrees as part of this project. Note, master and doctoral level students are a key driver for this programme. Provide all demographic information for students and staff that who will be involved in this project.

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| **Student / Staff member Name** | **Thesis title** | **Degree enrolled** | **Supervisor and co-supervisor** | **Race** | **Gender** | **Nationality** | **Links to industry partner / industry project** |
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# **Expected Impact: Commercialisation**

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| Indicate which aspects of the proposed research project will deliver new products or services that can be commercialised. If possible, also describe the route to industrialisation and commercialisation for these products/services and indicate or name the potential commercialisation partners. |
|  |

# **Project Budget**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Description** | **Year 1** | **Year 2** | **Year 3** | **Total** |
| Number of students |  |  |  |  |
| Labour (only CSIR & industry projects) |  |  |  |  |
| Student support[[4]](#footnote-4) |  |  |  |  |
| Materials and printing |  |  |  |  |
| Testing |  |  |  |  |
| Other consumables |  |  |  |  |
| **Total** |  |  |  |  |
| Co-funding (own institution)- COMPULSARY for CSIR and Industry Participants |  |  |  |  |
| Funding leveraged from other sources |  |  |  |  |
| **Total requested from CPAM** |  |  |  |  |

**Summary**

# **Ethical Clearance**

|  |  |
| --- | --- |
| Does this project require ethical clearance? |  |
| Has ethical clearance been obtained? |  |
| Is ethical clearance attached? |  |

# **Attachments**

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| --- |
| The following additional documents must be submitted with your application:   * Comprehensive CV with publication track record and student supervision record for the Principal Investigator (Compulsory) * Gantt chart for the project (Compulsory) * Proof of ethical approval is required for the proposed research if applicable (Compulsory) |

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| Description |  |
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| Description |  |
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# **APPROVALS**

I declare that the information supplied is correct and complete

|  |  |
| --- | --- |
| Applicant Signature | Date |
|  |  |

Approval by Department Head/Designated Authority/Research Administrator or Equivalent Executive

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Title |  | Initials |  | Telephone |  |
| Surname | |  | | Fax |  |
| Department | |  | | Mobile |  |
| Institution | |  | | e-mail |  |
| Designated Authority Signature | | | | | Date |
|  | | | | |  |

Please convert to pdf format and submit by return email to: [hgreyling@csir.co.za](mailto:hgreyling@csir.co.za)

1. Technology Demonstrator – “An incomplete version of a complete or scaled down/subset of a product put together as a proof of concept with the primary aim of showcasing the possible applications, feasibility, and method of an idea for a new technology. Different sectors use different terms to describe a technology demonstrator, e.g. in the chemical/bio-chemical sector the term ‘product’ or market sample is used. These terms are acceptable and will be considered to be technology demonstrators.” [↑](#footnote-ref-1)
2. Prototype – “An early sample, model, or release of a product built to test a concept or process or to act as a thing to be replicated or learned from. There are different types of prototypes (e.g. proof-of-principle; visual; working; functional prototypes). It can also be market samples or similar concepts; depending on the nature of the industry.” [↑](#footnote-ref-2)
3. Technology Package – “a TP is the key document or set of documents that are the basis for the activity of technology transfer. TPs are a means of communicating process information and knowledge to their recipients – the vendors that the sponsors select to perform the work.” This TP can be in the form of a “Process Document” [↑](#footnote-ref-3)
4. For doctoral student projects R 250 000 per year per project per student is allowed. This includes a bursary value of R 170 000 and R 80 000 for materials, testing and other consumables per student project. For master students R 180 000 per year per project per student is allowed. This includes a bursary value of R 120 000 and R 60 000 for materials, testing and other consumables per student project. [↑](#footnote-ref-4)