**FACULTY OF ENGINEERING:** **TRAINING NEEDS ANALYSIS (TNA)**

An individual approach to develop the skills and experience you should gain by the end of your higher degree studies.

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| Name of student: William Briggs |
| Department or School: Computer Science |
| Names of all supervisors: Mark Stevenson, Suzy Paisley, James Chillcott |
| Year of study:1 |

**Completing your TNA.** Before completing your TNA in consultation with your primary and secondary supervisor, you should read the [guidance notes](http://www.shef.ac.uk/polopoly_fs/1.93105!/file/TNA-Guidance-FCP.pdf) that accompany this form. The Faculty’s TNA form has been compiled with reference to the [Vitae Researcher Development Framework](https://www.vitae.ac.uk/researchers-professional-development/about-the-vitae-researcher-development-framework) (RDF), which was developed in consultation with a [range of stakeholders](https://www.vitae.ac.uk/researchers-professional-development/about-the-vitae-researcher-development-framework/vitae-researcher-development-statement-endorsements) including RCUK, HEFCE, The British Library and the Higher Education Academy. This development tool divides into four ‘Domains’ the skills, and attitudes and behaviours required to be an effective researcher. The framework is also recognised widely outside academia, and can provide you with an effective way of articulating your skills to future employers. If you are unfamiliar with the RDF, it may be useful to visit the [relevant section](https://www.vitae.ac.uk/researchers-professional-development/about-the-vitae-researcher-development-framework) of the Vitae website.

For many, the skills you will develop and attain as part of the DDP will aid in you attaining chartered status as Engineering and is mapped [here](https://www.vitae.ac.uk/vitae-publications/rdf-related/engineering-lens-on-the-vitae-researcher-development-framework-rdf-2012.pdf) showing the links between chartered status and your training.

**Level of experience/ability.** When assessing your current ability or experience in a specific area and identifying the level that you wish to attain, please use the numbers below. Note, each TNA is unique as it is a reflection of the experiences and abilities of an individual. There are no right or wrong answers.

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| **Key** | **Experience** | **Knowledge/understanding** | **Skill level** |
| 1 | I have no experience of this. | I have no knowledge/understanding of this. | I have no skill in this area. |
| 2 | I have some limited experience of this. | I have a little knowledge/understanding of this. | I have some basic skill in this area. |
| 3 | I have regular experience of this, but require further experience to become highly proficient | I have a good working knowledge of this area, but need to increase my knowledge to become highly proficient. | I am competent in this area, but require further development to become highly proficient. |
| 4 | I have extensive experience of this, and am able to use this experience effectively in my research. | I have extensive knowledge in/understanding of this area, which supports my research effectively. | I am highly skilled in this area, to a level that supports my research effectively. |
| 5 | I consider myself an expert in this and could train others in the area. | I consider myself an expert in this and could train others in the area. | I consider myself an expert in this and could train others in the area. |

Students grading their level of knowledge and experience at 1-3 should seek further training or ensure that they undertake activities that will enhance their knowledge (where appropriate). In order to be able to grade your experience, knowledge, understanding or skill at a 4 or 5 it is likely that you will have received relevant training at Masters level or above, and received documentation confirming this. Those grading their level of knowledge and experience at 5 may, with approval from their supervisors, seek further training if they wish.

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| **IMPORTANT NOTE FOR ALL STUDENTS AND SUPERVISORS:** The TNA should be **evidence based**. Students should detail how they have obtained the skills and knowledge they have in the space provided on this form – or as attachments to this document. The evidence they provide in this section of the form may include, but is not restricted to: the successful completion of a module, course or training session; work experience; published or submitted writing or assessment; attendance at or participation in conferences, symposia and research seminars; public engagement activities and/or other forms of research dissemination. |

**Prioritising your training and development**

Academic, professional and personal developments are all key aspects of your doctoral research experience, and the Faculty will support you to develop your skills throughout the course of your PhD. However, time is a precious resource, so it is important to ensure that you undertake the right training at the right stage of your PhD, nor should it detract from the completion of your thesis on time. When considering the priority of each aspect of each item in the following table, please decide – in consultation with your supervisor – whether the item is LOW, MEDIUM or HIGH priority for the upcoming year.

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| **RDF Domain A: Knowledge and Intellectual Abilities**  *the knowledge, intellectual abilities and techniques to do research* | | | | | |
|  | **Current skill level** | **How has this skill level been obtained (with evidence)?** | **Required skill level** | **Priority** | **Training plan agreed with supervisor(s), i.e. DDP modules, training courses etc.** |
| Knowledge of the research methods appropriate to my research field | 2 | Completed MSc in same field using appropriate research techniques | 5 | HIGH | Attend conferences to increase skills in of applying research methods. Read paper and attend talks. |
| Knowledge of how to retrieve information effectively | 3 | Completed MSc in same field using appropriate research techniques | 4 | LOW | Skills at a good level due to previous dissertation. Familiar with university’s search system ‘starplus’ |
| Knowledge of how to undertake an advanced literature review in my research field | 3 | Completed MSc in same field using appropriate research techniques | 5 | LOW | Attend appropriate lectures on literature searching organized by department of engineering. |
| Knowledge of writing styles appropriate to graduate research in my field | 2 |  | 4 | MEDIUM | Read papers in my field from a variety of sources to get a grasp on the various different writing styles. Read papers that focus on a more practical application and papers that focus on a more theoretical side to broaden skill set. |
| Knowledge of relevant IT packages to my studies and field in general | 4 | Computer Science student | 5 | MEDIUM | Review technical frameworks such as SciKit Learn, TensorFlow, Keras. |
| Ability to keep up to date with new research developments | 2 |  | 5 | MEDIUM | Attend conferences regularly to keep up-to-date on latest research trends. Read relevant papaers. |
| Knowledge of how to create materials suitable for presentation on-line | 2 | Created web page for tePHTA group (<https://sites.google.com/sheffield.ac.uk/text-processing-for-health-tec/home>) | 5 | LOW | Speak with peers who have given presentations at conferences. |
| Broader understanding of research in other fields applicable to my field | 3 |  | 5 | HIGH | Arrange Meetings with SCHARR outside of department. Undertake module on systematic reviews. |
| Anything else identified and agreed by the supervisor and the student [please specify]: |  |  |  |  |  |
| **RDF Domain B: Personal Effectiveness**  *the personal qualities and approach to be an effective researcher* | | | | | |
|  | **Current skill level** | **How has this skill level been obtained (with evidence)?** | **Required skill level** | **Priority** | **Training plan agreed with supervisor(s), i.e. DDP modules, training courses etc.** |
| An ability to manage my time effectively | 5 | Worked in Industry | 5 | LOW | Use time boards such as trello. Or use a work methodology such as scrum. |
| Knowledge of how to make the most of conferences | 1 |  | 4 | HIGH | Speak to members of department who regularly attend conferences. Attend Healtex. |
| Networking skills | 1 |  | 4 | MEDIUM | Attend conferences to build connections with fellow researchers/PhD students. Social media and internal opportunities. |
| Understanding of how to prepare for the viva | 1 |  | 5 | HIGH | Speak with supervisor closer to date. |
| Experience of preparing a CV | 3 | Worked in Industry | 5 | LOW | Observe academic CVs to get a grasp on the key differences between a traditional CV. |
| Understanding of the range of career destinations PhDs both within and outside academia | 3 | Completed MSc in same field using appropriate research techniques | 4 | MEDIUM | Subscribe to job mailing list. |
| Anything else identified and agreed by the supervisor and the student [please specify]: |  |  |  |  |  |
| **RDF Domain C: Research Governance and Organisation**  *the knowledge of the standards, requirements and professionalism to do research* | | | | | |
|  | **Current skill level** | **How has this skill level been obtained (with evidence)?** | **Required skill level** | **Priority** | **Training plan agreed with supervisor(s), i.e. DDP modules, training courses etc.** |
| Understanding of plagiarism and how to avoid it | 5 | BSc and MSc | 5 | LOW | Take ethics module. |
| Understanding of copyright issues relevant to doctoral research | 3 | Went to introduction talk on copyright in PhD | 5 | LOW | Attend introduction into copyright talk PhD. Take other suitable modules for doctoral development program. |
| Knowledge of how to plan and manage a research project | 3 | Completed MSc in same field using appropriate research techniques | 4 | MEDIUM | Plan out research and get feedback from supervisor/panel |
| Knowledge of appropriate Health and Safety requirements for conducting research | 4 | Followed the health and safety documentation online. | 5 | LOW |  |
| Understanding of research ethics and good research practice relevant to their research field | 4 | BSc and MSc | 4 | LOW | Take ethics module. |
| Anything else identified and agreed by the supervisor and the student [please specify]: |  |  |  |  |  |
| **RDF Domain D: Engagement, Influence and Impact**  *the knowledge and skills to work with others and ensure the wider impact of research* | | | | | |
|  | **Current skill level** | **How has this skill level been obtained (with evidence)?** | **Required skill level** | **Priority** | **Training plan agreed with supervisor(s), i.e. DDP modules, training courses etc.** |
| An ability to communicate orally in an effective manner | 2 |  | 5 | MEDIUM | Take teacher training modules. Mark student work and give oral feedback. |
| Understanding of how to get the best from the student-supervisor relationship | 4 | Worked together for MSc project | 5 | MEDIUM | - |
| Experience of presenting research at conferences/workshops | 1 | Talk with group. | 4 | MEDIUM | Attend conferences and give presentations on work. |
| Knowledge of how to prepare research for publication | 1 |  | 4 | MEDIUM | Speak to members of the department and fellow PhD students to familiarize self with publishing work. |
| Ability to write for different audiences | 1 |  | 4 | MEDIUM | Attend conferences to observe different styles of presentations. Read various papers. |
| Experience of teaching and demonstrating | 2 | Undertaken teaching products before | 4 | MEDIUM | Take the teacher training modules. Supervise lab classes as an assistant. |
| Understanding of how to make my research count (i.e. impact, outreach and knowledge exchange) | 1 |  | 4 | MEDIUM | Attend lectures on how to get work out there. Work with potential users. observe social media. |
| Anything else identified and agreed by the supervisor and the student [please specify]: |  |  |  |  |  |

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| **Student signature:** | **Date:** |
| **Signatures of all supervisors:** | **Date:** |
| **Signature of departmental PGR Director:** | **Date:** |