Template for adverting PhD project on FindAPhD.com
****Please read accompanying guidance notes****

Department	School of Engineering and the Built Environment
Supervisors	Dr Dan Ridley-Ellis and Dr Andrew Livingstone
Funding Status	Funded PhD Project (Worldwide)
Application Deadline	14/04/2022
Project Title	Improved approaches to strength grading of UK-grown timber

PROJECT DESCRIPTION

Do you want to improve the way wood is used in buildings? Would you like the way we use wood to match the kind of forests the public would like to see? Do you want to play a key role in getting the UK towards its 2050 net zero target?

The wood we will be using in 2050 is already growing in the forest now, but we still need to find ways to use it well. There needs to be a new approach to add to the existing options for machine and visual strength grading of construction timber in the UK and Europe. This is necessary for extending the grading to underutilised species - particularly hardwoods. This is needed to diversify the range of species used for construction timber, for better resilience of the forest (and the timber industry) to pests, diseases and climate change. The work is particularly necessary to meet objectives in England to get more wood from native broadleaves into construction products. The research will also study the potential and limitations for mixed species grading, simplified methods of grading for smaller producers, and the potential for grading within the fabrication process for modern methods of construction. The work will take place in one of Europe's leading centres for structural timber grading and link into other projects working towards similar aims.

Academic qualifications

A first degree (at least a 2.1) ideally in a relevant engineering or scientific subject, forestry or wood technology with a good fundamental knowledge of engineering mechanics and mathematics.

English language requirement

IELTS score must be at least 6.5 (with not less than 6.0 in each of the four components). Other, equivalent qualifications will be accepted. [Full details of the University's policy](#) are available online.

Essential attributes:
- Experience of fundamental concepts of materials and engineering mechanics
- Competent in laboratory work, data management and processing
- Knowledge of the ways timber can be used in construction
- Good written and oral communication skills
- Strong motivation, with evidence of independent research skills relevant to the project
- Good time management

Desirable attributes:

Knowledge of wood science, timber engineering, wood processing or forestry. Familiarity with standards and certification of construction products. Ability to use R, or other programming language.

Indicative Bibliography	Ridley-Ellis, D., Stapel, P., & Baño, V. (2016). Strength grading of sawn timber in Europe: an explanation for engineers and researchers. European Journal of Wood and Wood Products, 74(3), 291-306. https://doi.org/10.1007/s00107-016-1034-1 Adams, S., & Ridley-Ellis, D. (2021). Alternative UK timber species. In Timber 2021 Industry Yearbook (104-111). High Wycombe: TRADA https://issuu.com/trada/docs/trada_2021_issuu Brunetti M, Aminti G, Nocetti M, Russo G (2021). Validation of visual and

	machine strength grading for Italian beech with additional sampling. iForest 14: 260-267. - https://doi.org/10.3832/ifor3649-014
Funding notes	This project may be funded by a scholarship of the School of Engineering and Built and Environment. Please see School-funded PhD scholarships - RESEARCH AND INNOVATION (napier.ac.uk) for information on the scholarships and how to apply for them.
Enquiries	For informal enquiries about this PhD project, please contact d.ridleyellis@napier.ac.uk
Web page	https://www.napier.ac.uk/research-and-innovation/research-degrees/application-process

School RDPL signature	
Date	Click here to enter a date.
School DOR signature	
Date	Click here to enter a date.