

This information has been extracted from the Panel Criteria and Working Methods document (REF 01.2012) published by the REF Team in January 2012.

UOA Descriptor

The UOA includes multi-disciplinary and interdisciplinary engineering research in fields such as medical engineering, bioengineering, biomechanics, environmental engineering, sustainability engineering, offshore technology, renewable energy/energy conversion, spacecraft engineering, control systems engineering and industrial studies. The UOA also includes mineral and mining engineering and pedagogic research in engineering.

The sub-panel also welcomes submissions from single organisational units within institutions that include activities spanning two or more of the other three UOAs in the fields of engineering: UOA 12 (Aeronautical, Mechanical, Chemical and Manufacturing Engineering), UOA 13 (Electrical and Electronic Engineering, Metallurgy and Materials), and UOA 14 (Civil and Construction Engineering). However, for submissions of this nature, the subpanel will cross-refer any outputs that they consider to be more expertly assessed by other sub-panels in the fields of engineering.

The sub-panel expects submissions in this UOA from all areas of general engineering, as defined above, and expects that the majority of the research activity submitted will have made a direct contribution to the UOA as characterised in the UOA descriptor. It recognises and welcomes, however, the increasingly interdisciplinary nature of research in this area, and expects that submissions may contain outputs that make contributions to general engineering and other disciplines, including those which have boundaries with this UOA, such as those UOAs within the remit of Main Panel B.

Outputs

Citations	This sub-panel will not be provided with citation data by the REF Team. No panels will use impact factors, journal lists, rankings, or publisher quality information.
Eligible output types	All outputs are eligible providing they embody research as defined for the purposes of the REF ¹ .
Non-text or practice-based submissions	Accepted. HEIs must include a description of the research process and content in REF2 for each applicable output (max 300 words). Reviews can be submitted but must be justified in REF2 (max 300 words) to identify the original research and the new insights reported.

¹ 'For the purposes of the REF, research is defined as a process of investigation leading to new insights, effectively shared'. See REF 02.2011 Assessment Framework and Guidance on Submissions for the full definition.

Double-weighted outputs	<p>Accepted in exceptional circumstances.</p> <p>HEIs may request that outputs of extended scale and scope be double-weighted. HEIs may include a 'reserve' output with each output requested for double-weighting.</p> <p>A justification (max 100 words) will need to be submitted for consideration by the sub-panel.</p>
Co-authored or collaborative outputs submitted in different submissions (same HEI but different UOAs, or different HEI same/difference UOA)	<p>Accepted but only where an author has made a significant contribution to the output.</p> <p>No additional information is required, although if the sub-panel is unclear as to the significant contribution of an individual to the output then it may request further information from the HEI through an audit.</p>
Co-authored or collaborative outputs submitted in the same submission (same HEI and same UOA)	<p>All panels consider that the fullest and most favourable impression of research will normally be gained when each co-authored output is listed once within a submission.</p> <p>Co-authored outputs within the same submission only be accepted in very exceptional cases against a maximum of 2 individuals per submission (must be explained in REF2, max 100 words).</p>
Additional output information required	<p>The sub-panel welcomes factual details about all outputs (max 100 words per output in REF2) (see paragraph 35 in the Main Panel B Panel Criteria).</p>

Criteria and level definitions

In assessing outputs, the sub-panels will look for evidence of originality, significance and rigour and apply the generic definitions of the starred quality levels as follows:

In assessing work as being four star sub-panels will expect to see evidence of, or potential for, some of the following types of characteristics:

- agenda-setting
- research that is leading or at the forefront of the research area
- great novelty in developing new thinking, new techniques or novel results
- major influence on a research theme or field
- developing new paradigms or fundamental new concepts for research
- major changes in policy or practice
- major influence on processes, production and management
- major influence on user engagement.

In assessing work as being three star, sub-panels will expect to see evidence of, or potential for, some of the following types of characteristics:

- makes important contributions to the field at an international standard
- contributes important knowledge, ideas and techniques which are likely to have a lasting influence, but are not necessarily leading to fundamental new concepts
- significant changes to policies or practices
- significant influence on processes, production and management
- significant influence on user engagement.

c. In assessing work as being two star, sub-panels will expect to see evidence of, or potential for, some of the following types of characteristics:

- provides useful knowledge and influences the field
- involves incremental advances, which might include new knowledge which conforms with existing ideas and paradigms, or model calculations using established techniques or approaches
- influence on policy or practice
- influence on processes, production and management
- influence on user engagement.

In assessing work as being one star, sub-panels will expect to see evidence of, or potential for, some of the following types of characteristics:

- useful but unlikely to have more than a minor influence in the field
- minor influence on policy or practice
- minor influence on processes, production and management
- minor influence on user engagement.

Research will be graded as 'unclassified' if it falls below the quality levels described above or does not meet the definition of research used for the REF.

Impact

Eligibility of submitting the impact of teaching	Excluded unless they extend significantly beyond the submitting HEI. For example, the take-up by the HE sector of products arising from research such as open source software would be eligible.
Impact case studies – quality of the underpinning research	HEIs must identify up to 3 outputs that demonstrate the quality of the underpinning research. These will be used by the sub-panel to judge the quality.

Environment

Additional environment data to be provided	None required.
Environment elements weightings (5 elements)	0% - overview (information only) 20% - strategy 30% - people 30% - income, infrastructure & facilities 20% - collaboration & contribution to the discipline
Structure of submissions	HEIs are encouraged to structure submissions using research groups, and to link individuals to research groups.