

Complex Engineering Problems (**WP**)

In the context of both Graduate Attributes and Professional Competences:

Attribute	<i>Complex Engineering Problems</i> have characteristic WP1 and <u>some or all</u> of WP2 to WP7 :
Depth of Knowledge Required	WP1: Cannot be resolved without in-depth engineering knowledge at the level of <u>one or more of WK3, WK4, WK5, WK6 or WK8</u> which allows a fundamentals-based, first principles analytical approach
Range of conflicting requirements	WP2: Involve wide-ranging and/or conflicting technical, non-technical issues (such as ethical, sustainability, legal, political, economic, societal) and consideration of future requirements
Depth of analysis required	WP3: Have no obvious solution and require abstract thinking, creativity and originality in analysis to formulate suitable models
Familiarity of issues	WP4: Involve infrequently encountered issues or novel problems
Extent of applicable codes	WP5: Address problems not encompassed by standards and codes of practice for professional engineering
Extent of stakeholder involvement and conflicting requirements	WP6: Involve collaboration across engineering disciplines, other fields, and/or diverse groups of stakeholders with widely varying needs
Interdependence	WP7: Address high level problems with many components or sub-problems that may require a systems approach

Note

WPs must be included in courses attaining PO1 to PO6. WP1 is compulsory, and at least two of WP2 to WP7 should be included.