

**Competency Matrix for General Petroleum Engineering
SPE Task Force on Minimal Competency**

Task	General Knowledge/Skill*		
	Minimum Competence Breadth	Minimum Competence Depth	Above Minimum Competence
Understand and use petroleum engineering terminology.	Understand general terminology of all sub-disciplines.	Understand terminology specific to the sub-discipline.	Understand terminology in areas of expertise.
Identify and use relevant industry and company design standards.	Identify what design standards exist in all sub-disciplines.	Understand and use conventional design standards specific to the sub-discipline.	Help create design standards as well as apply standards to non-conventional applications.
Maintain regulatory compliance.	Identify what regulatory bodies have jurisdiction and where to find documentation of the applicable regulations.	Complete necessary regulatory permitting and reporting specific to the sub-discipline.	Work with regulators on rule changes and exceptions.
Identify and use technical software and informational databases.	Identify what technical software and informational databases exist in all sub-disciplines.	Understand and use conventional technical software and informational databases specific to the sub-discipline.	Help create technical software and informational databases as well as apply technical software and informational databases to non-conventional applications.
Use project management skills .	Understand the elements of project management (costing, scheduling, contracting, logistics, etc.).	Apply project management skills to projects within sub-discipline.	Apply project management skills in larger projects and across sub-disciplines.
Understand and apply geoscience principles.	Understand geoscience principles (e.g., fracture gradients, well bore stability, pore pressure prediction).	Understand and apply geoscience principles within sub-discipline.	Apply geoscience principles across sub-disciplines.
Perform decision and risk analysis and contingency planning.	Understand decision and risk analysis concepts and the value of contingency planning.	Conduct risk assessments within sub-discipline and prepare contingency plans to manage risks.	Conduct risk assessments across sub-disciplines for a project and prepare contingency plans.
Monitor operations and optimize performance.	Understand basic monitoring/optimization techniques.	Perform conventional operations monitoring specific to a sub-discipline and make optimization recommendations.	Perform operations monitoring in areas of expertise or across sub-disciplines and make recommendations to optimize system performance.
Evaluate economics of project.	Understand basic economic principles (PV analysis, lease vs. purchase, etc.).	Perform economic evaluations of projects within the sub-discipline.	Perform economic evaluations across sub-disciplines or in specialty areas within a sub-discipline.

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Participate in a multi-disciplinary/cultural team.	Understand the value of a multi-disciplinary/cultural approach to a project.	Perform all the conventional duties of the sub-discipline team member.	Lead a multi-disciplinary/cultural team and be able to perform the duties of two or more sub-disciplines.
Perform duties in ethical manner.	Understand the ethical code of behavior for the general practice of engineering.	Demonstrate ethical behavior in sub-discipline.	Provide leadership in ethical behavior across disciplines.
Promote engineering professionalism.	Maintain membership in technical and professional societies and pursue professional license/certification.	Participate actively in technical and professional societies and obtain professional license/certification.	Encourage others in industry to join and actively participate in technical and professional societies and to become licensed or certified.
* Knowledge/skill related to "Public Welfare" which includes safety, health, environment, regulatory compliance, preservation of resource, correlative rights, and social and economic impacts.			