Work Activity and Competency Analysis Rating Form

Domain No. 1: Research and system analysis of semiconductor technologies

1. Work Activities	2. % time	3. Importance	4. Consequence of error	5. Competencies (knowledge, skills and abilities) Essential to work activity	6 Job Behaviors Indicating Standard (Satisfactory) Performance
1. Understand basic working principles of semiconductor devices	30	Critical Important Necessary Marginal	High Average Low	Strong knowledge of basic electronics and electrical engineering background, quick grasp of physical principles.	Comes up with novel ideas to improve upon already existing semiconductors
2. Develop basic working models of new devices	50	Critical Important Necessary Marginal	High Average Low	Analytical and mathematical skills, keen observational and ability to identify mathematical and physics patterns	Showing strong inclination to publish articles and papers in technical publications
3. Indulge in proactive debates and discussions on new technology working principles	30	Critical Important Necessary Marginal	High Average Low	Ability to think out of the box while abiding by the first principles	Comes up with creative solutions and ideas for new technology implementation and experimentation
4. Design new test structures for efficient evaluation of new technologies	10	Critical Important Necessary Marginal	High Average Low	Knowledge of existing and standard test methodologies and structures	Helps in new mask definition and design and contributes with meaningful additions to the existing test chips
5. Ability to test standard semiconductor devices, analyze and interpret the test data in accordance with the established theory	15	Critical Important Necessary Marginal	High Average Low	Basic testing equipments proficiency, data collection and processing abilities, ability to quickly adapt to difference tester platforms	Quickly able to set aside already well established device testing by gathering needed data and move on to focus on testing new technology devices
Example: Project Planning	10	Important	Average	Knowledge of project planning, principles and techniques, Ability to estimate project resources.	Due Dates listed and revised as project progresses, usually adding unforeseen events.

Behavioral Based Performance Supplemental Performance Standards Worksheet

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Work Activities	7. Job Behaviors Indicating Performance Below Standard	Job Behaviors Indicating Standard (Satisfactory) Performance	8. Job Behaviors Indicating Performance Above Standard
1. Understand basic working principles of semiconductor devices	Struggling in discussions and follow-up questions in group meetings	Comes up with novel ideas to improve upon already existing semiconductors	Ability to lead convincing discussions and planning of sparsely known technologies
2. Develop basic working models of new devices	Not able to actively explain standard device models of already well established semiconductor devices	Showing strong inclination to publish articles and papers in technical publications	Strong participation in conferences and technical meetings and able to garner strong citations from the particular technical field
3. Indulge in proactive debates and discussions on new technology working principles	Staying dormant in group discussions and planning and troubleshooting sessions	Comes up with creative solutions and ideas for new technology implementation and experimentation	Able to repeatedly and successfully come up with hypothesis and experimental results to back up new theories
4. Design new test structures for efficient evaluation of new technologies	Not able to quickly grasp others' ideas of novel and new test structures	Helps in new mask definition and design and contributes with meaningful additions to the existing test chips	Leads and succeeds in new test chip development with the least need for mask redesigns by avoiding design errors in the first place
5. Ability to test standard semiconductor devices, analyze and interpret the test data in accordance with the established theory	Takes way too long to test and analyze well defined and previously known devices	Quickly able to set aside already well established device testing by gathering needed data and move on to focus on testing new technology devices	Able to master testing of the sparsely known new technology devices with little or no need for testing standard semiconductor devices that are part of the test structures
Example: Project Planning	**Unacceptable** Plans poorly defined; unrealistic time schedules are common	**Satisfactory** Due Dates listed and revised as project progresses, adding unforeseen events.	**Excellent** Develops comprehensive project plan, documents it well and distributes to all.

Pre-requisite Competencies (Knowledge, Skills and Abilities) Identification For Work Activities

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Work Activities	Competency (KSAs – Knowledges, Skills, Abilities)	9. Competency - Pre-Requisite and Performance Links	10. Minimum Education And/Or Experience (provide alternatives)	11. Essential Physical Requirements
1. Understand basic working principles of semiconductor devices	Strong knowledge of basic electronics and electrical engineering background, quick grasp of physical principles.	Pre-Requisite Requirement Needed to Achieve Standard Needed to Exceed Standard	Ph.D. in Electrical/Materials/Chemical Engineering	NA
2. Develop basic working models of new devices	Analytical and mathematical skills, keen observational and ability to identify mathematical and physics patterns	Pre-Requisite Requirement Needed to Achieve Standard Needed to Exceed Standard	Ph.D. in Electrical/Materials/Chemical Engineering	
3. Indulge in proactive debates and discussions on new technology working principles	Ability to think out of the box while abiding by the first principles	Pre-Requisite Requirement Needed to Achieve Standard Needed to Exceed Standard	Ph.D. in Electrical/Materials/Chemical Engineering	Clear communication with right ennunciation
4. Design new test structures for efficient evaluation of new technologies	Knowledge of existing and standard test methodologies and structures	Pre-Requisite Requirement Needed to Achieve Standard Needed to Exceed Standard	Masters in Electrical/Materials/Chemical Engineering	
5. Ability to test standard semiconductor devices, analyze and interpret the test data in accordance with the established theory	Basic testing equipments proficiency, data collection and processing abilities, ability to quickly adapt to difference tester platforms	Pre-Requisite Requirement Needed to Achieve Standard Needed to Exceed Standard	Masters in Electrical/Materials/Chemical Engineering	Enough physical strength to move moderately heavy electrical test equipments