

Manufacturing Engineer

Designs and plans layout for such activities as machining, metal forming, plastics processing, welding and brazing, assembly, and materials handling. Adapts machine or equipment design to factory and production conditions. Plans for the arrangement of machines within plant facilities to ensure most efficient and productive layout. Plans sequence of operations and specifies procedures for the fabrication of tools and equipment and other functions that affect product performance. May incorporate inspection and test requirements into the production plan. Inspects performance of machinery, equipment, and tools to verify their efficiency, and investigates and initiates corrective action of problems and deficiencies to ensure product quality. Develops manufacturing processes that are applicable to statistical process control, and may develop those techniques. Provides guidance to Engineering regarding design concepts and specification requirements to best utilize equipment and manufacturing techniques.

	Level 1	Level 2	Level 3	Level 4	Level 5	Level 6	Level 7	Level 8
	Manufacturing Engineer I	Manufacturing Engineer II	Manufacturing Engineer III	Manufacturing Engineer IV	Associate Principal Manufacturing Engineer	Principal Manufacturing Engineer	Sr. Principal Manufacturing Engineer	Chief Engineer
Discretion/Latitude	Work is closely supervised. Follows specific, detailed instructions and/or guidance from more senior functional staff.	Works under general supervision. Follows established procedures. Work is reviewed for soundness of technical judgment, overall adequacy and accuracy.	Works under only general direction. Independently determines and develops approach to solutions. Work is reviewed upon completion for adequacy in meeting objectives.	Work is performed without appreciable direction. Exercises some latitude in determining technical objectives of assignment. Completed work is reviewed for desired results.	Work is performed without appreciable direction. Exercises considerable latitude in determining technical objectives of assignment. Completed work is reviewed from a relatively long-term perspective, for desired results.	Works under consultative direction toward predetermined long-range goals and objectives. Determine and pursue courses of action necessary to obtain desired results. Completed work is reviewed from a relatively long-term perspective, for desired results.	Works under consultative direction toward predetermined long-range goals and objectives. Assignments are often self-initiated. Determines and pursues courses of action necessary to obtain desired results. Work checked through consultation and agreement with others rather than by formal review of superior.	Works with Business Areas in an engineering leadership capacity to uncover and resolve issues associated with the development and implementation of operational programs and business pursuits. Identifies, recommends and aligns R&D programs and technological applications to accomplish long-range business objectives. Develops and maintains the Business Area's Technology Roadmap. Work is reviewed only to determine the effectiveness of the results obtained, typically from a short-term perspective for operational issues and a long-term perspective for technology alignment to the Business Area's strategies.

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Knowledge, Skills and Abilities	Limited use and/or application of basic technical principles, theories and concepts to specific job assignments.	Frequent use and application of basic technical standards, principles, theories, concepts and techniques.	Complete understanding and wide application of technical principle, theories, and concepts in the field. General knowledge of other related disciplines.	Applies technical expertise and has detailed knowledge of other related disciplines.	Applies extensive technical expertise and has full knowledge of other related disciplines. Answers technical questions regarding products and services, and may take part in putting together proposals, configurations, and product offerings.	Applies advanced technical principles, theories and concepts. Contributes to the development of new principles and concepts. Identifies, analyzes and develops new business opportunities. Answers unusually complex technical questions regarding products and services, and takes part in putting together proposals, configurations and product offerings.	Applies advanced technical principles, theories and concepts. Contributes to the development of new principles and concepts. Widely recognized for achievements, technical expertise and meritorious standing within professional field. Identifies, analyzes and develops new business opportunities. Establishes customer contacts, conducts research and analysis into their future plans and needs, assists with the development of their specifications, develops proposals, and delivers marketing presentations.	Exhibits an exceptional degree of ingenuity, creativity, resourcefulness and technical leadership. Applies and/or develops highly advanced technologies, scientific principles, theories and concepts to meet the needs of the Business Area. Viewed as a leading expert in applying technology and solving operational issues in support of the Business Area's objectives. Establishes long-range marketing plans and technology Roadmaps for the Business Area's products and services by identifying, analyzing and developing new business opportunities. Establishes customer contacts, develops proposals, and delivers technical marketing presentations. Cultivates and maintains relationships with key decision makers.

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Problem Solving	Develops solutions to routine technical problems of limited scope by following standardized practices and procedures.	Provides solutions to a variety of technical problems of moderate scope and complexity.	Provides technical solutions to a wide range of difficult problems. Solutions are imaginative, thorough, practicable and consistent with organization objectives.	Develops technical solutions to complex problems which require the regular use of ingenuity and creativity.	Develops technical solutions to complex problems which require the regular use of ingenuity and creativity.	Works on unusually complex technical problems and provide solutions which are highly innovative and ingenious.	Works on unusually complex technical problems and provide solutions which are highly innovative and ingenious.	Applies technology and engineering and performs a leadership role to achieve the Business Area's operational and strategic goals. Applications may be diverse and include newly developed concepts, theories and products, or engineering discipline.
Impact	Contributes to the completion of routine technical tasks. Failure to achieve results can normally be overcome without serious effect on schedules and programs.	Contributes to the completion of milestones associated with specific projects. Failure to achieve results or erroneous decisions or recommendations may cause delays in program schedules and may result in the allocation of additional resources.	Contributes to the completion of specific programs and projects. Failure to obtain results or erroneous decisions or recommendations would typically result in serious program delays and considerable expenditure of resources.	Plans and conducts assignments, generally involving the larger and more important projects or more than one project. Erroneous decisions or recommendations would typically result in failure to achieve major contract objectives.	Regularly called upon to function in a project leadership role. Erroneous decisions or recommendations would typically result in failure to achieve major organization objectives	Develops technological ideas and guides their development into a final product. Erroneous decisions or recommendations would typically result in failure to achieve critical project objectives. Leads the planning and implementation of large projects/programs. Contributes to department goals and planning efforts.	Develops advanced technological ideas and guides their development into a final product. Erroneous decisions or recommendations would typically result in failure to achieve critical organizational objectives and affect the image of the organization's technological capability. Functions in a program leadership role. Plays a key role in implementing programs/projects and makes significant contributions to department goals and overall functional strategic planning efforts.	Sets the technology direction for the Business Area and corrects the course of current errant technology direction when warranted. Erroneous decisions or recommendations would have a long-term negative effect on the organization's reputation and business posture. Leads development and implementation of key programs and/or processes for the Business Area.

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Liaison	Contacts are primarily with immediate supervisor, project leaders, and other professionals in the section or group.	Primarily internal company contacts. Infrequent inter-organizational and outside customer contacts on routine matters.	Frequent inter-organizational and outside customer contacts. Represents the organization in providing solutions to technical issues associated with specific projects.	Represents the organization as the technical contact on contracts and projects. Interacts with external personnel on technical matters often requiring coordination between organizations.	Represents the organization as the prime technical contact on contracts and projects. Interacts with senior external personnel on significant technical matters often requiring coordination between organizations.	Serves as organization spokesperson on projects and/or programs. Acts as advisor to management and customers on advanced technical research studies and applications.	Serves as organization spokesperson on advanced projects and/or programs. Acts as advisor to management and customers on advanced technical research studies and applications. Often instrumental in attracting and obtaining major new company business.	Serves as a consultant to the Business Area's top management in long-range company planning concerning new or projected areas of technological research, advancement, and the current program's technical performance. Prime spokesperson on the Business Area's technical capabilities and future direction. Often instrumental in attracting and obtaining major new company business.
Minimum Education and Experience	0-2+ years with BS in designated Engineering or related field.	2-5+ years with BS in designated Engineering or related field.	5-8+ years with BS in designated Engineering or related field.	8-10+ years with BS in designated Engineering or related field.	10-12+ years with BS in designated Engineering or related field. Employees usually have advanced degree in field of specialization.	12+ years with BS in designated Engineering or related field. Employees usually have advanced degree in field of specialization.	15+ years with BS in designated Engineering or related field. Employees usually have advanced degree in field of specialization.	20+ years of broad and extensive professional experience with BS in Engineering or related field. Employees usually have advanced degrees in Engineering.