Engineering At John Deere

A job in an engineering field is a lot of work, no matter what field it is. At John Deere here in Augusta there are just about every type of engineer. I chose to research three different types of engineers; Quality Engineer, Product Engineer, and Manufacturing Engineer, because my mentor Amy worked as all three and my Uncle and Amy are currently Quality Engineers.

While working as a Quality Engineer at John Deere your major purpose is; providing quality planning, control, and improvement support for product development teams, manufacturing engineering, supply management, and manufacturing and/or distribution organizations to assure John Deere product quality meets the customers' expectations. This includes the application of quality tools within the Enterprise Product Delivery Process, Enterprise Order Fulfillment Process, and Customer Support Process. Also supports application of quality tools with key suppliers as an integral element of quality planning.

There are a lot of qualifications for a job like this including; competencies, technical skills, formal education and relevant work experience critical for successful individual performance of essential functions being just a few.

Major duties of a Quality Engineer include; participating on PDP (Product Delivery Process) teams as the Quality representative, ensuring quality activities and plans are formulated and followed, engaging in applying/leading Quality tools in Product Delivery Process (PDP) teams, encouraging early interaction of both customer and supplier input to team activities, participating in Design Process and Assembly Reviews (DPARs), print reviews, and design reviews of new products, monitoring and facilitates quality activities for part approval, verifies manufacturing processes (control plans, assembly instructions) and confirms process capability, using quality tools and practices to establish approval criteria to ensure the identification of quality failure concerns for both internal and external manufactured parts and assemblies. An example is Failure Modes & Effects Analysis (FMEA), Investigating unit quality related issues and concerns related to product and processes, gathers and analyzes data, resolves/facilitates resolution and implements corrective action, engaging in applying/leading Quality tools on Customer Support Process (CSP), Continuous Improvement (CI), and/or Value Improvement (VI) teams, executes John Deere Quality Control Plan where implemented, investigates product quality problems, determining root cause for quality problems, gathers and analyzes data and implements corrective action to reduce or eliminate non-value waste resulting from non-conformances, scrap or reclaim, assisting in identifying, communicating and resolving supplier quality problems engaging in supplier quality plan formulation as necessary, conducting audits of new and existing suppliers to determine manufacturing capability and adherence to accepted quality practices, driving prevention actions, facilitating and writing quality procedures for the purpose of maintaining/updating the factory quality system and supports quality system audits, reviewing results with audit team, and participating in management review meetings, providing training and/or supervision to co-workers, inspectors, technicians and auditors on quality procedures and tools to monitor critical processes to assure consistent control and/or to implement cost-saving ideas to improve our products to meet customer expectations.

Some special skills and knowledge are required to pursue this career, including; knowledge of drawing and schematic interpretation, product models, geometric dimensioning and tolerancing, knowledge of standard quality tools such as FMEA (Failure Modes Effect Analysis), SPC (Statistical Process Control), root cause analysis, statistics, knowledge of manufacturing and/or distribution processes, quality, tooling, tool design, total preventative maintenance and facilities, knowledge of products, customers, markets and competitors, knowledge of advanced data gathering and analysis techniques, including statistical analysis, effective writing skills, including grammatical usage, persuasive copy and style.

Specific education is required; formal education or training required to perform the essential functions of the job. Includes degrees, certifications, licenses and/or registration requirements, a degree in a Business/Management discipline or equivalent experience, a degree in an Engineering/Technology discipline or equivalent experience, a degree in a Science discipline or equivalent experience, and a degree in a Math discipline or equivalent experience.

The next type of engineer I am going to talk about is a Product Engineer. As a Product Engineer some of your major purposes are; planning coordinates, performing product design, testing and/or analysis work for a complete project of moderate scope or for a significant portion or a sub-system of a major and diverse project, operating in a team environment, providing input to design solutions and participating in design reviews, you may assign, coordinate and review portions of the work to support personnel, decisions are made within established guidelines and may be reviewed by supervisors.

There are a lot of qualifications for a job like this including; Competencies, technical skills, formal education and relevant work experience critical for successful individual performance of essential functions just to name a few.

Major duties of a Product Engineers include; executing high level applications to more complex problems, analyzing assignments and determining engineering specifications which must be fulfilled for complex problems or projects of moderate scope, producing and/or evaluating possible design solutions to improve cost, quality and performance based on specialized knowledge of engineering applications. This may include possible involvement of other functional engineers, supply management and/or supplier personnel. Compiling and furnishing necessary information (engineering decisions and reports of pertinent design analyses data) to document the design solution required for building of prototypes and adoption of the design with possible involvement of other functional engineers, supply management and/or supplier personnel, providing technical support to marketing, manufacturing, quality and supply management organizations, developing and/or executes test or analysis plan for product verification and validation, applying knowledge of company products, policies and practices to provide economies through standardization of parts and products.

Some special skills and knowledge are required to pursue this career, including; skills in using company information systems and processes, skill in using computer aided design and/or engineering tools, understanding of engineering principles as they relate to the company product, fundamental understanding of machine forms relevant to the specific job assignment and Company division/unit. Knowledge/familiarity with machines manufactured by competitors, knowledge in engineering principles, theory and practice as well as product knowledge, knowledge of the Enterprise Product Delivery Process (EPDP), Enterprise Technology Development process (ETDP) and/or Enterprise Customer Acquisition Process (ECAP).

Specific education is required; formal education or training required to perform the essential functions of the job. Includes degrees, certifications, licenses and/or registration requirements, a Degree in an Engineering/Technology discipline or equivalent experience, a degree in a Science discipline or equivalent experience, and a degree in an Agricultural Sciences discipline or equivalent experience.

Finally, the last type of Engineer I am going to talk about are Manufacturing Engineers. As a Manufacturing Engineer some of your major purposes are; planning, coordinating, and performing manufacturing engineering work for a project or process, operating in a team environment within either the enterprise product delivery process or the enterprise order fulfillment process. At this level, projects are of moderate scope and responsibility or may be a significant portion of a major and diverse project or process; decisions are made within established guidelines and may be reviewed by supervisors and/or managers. You also may assign, coordinate and review portions of the work for support personnel, contractors and suppliers.

The qualifications for this job are very similar to the other types of engineering jobs.

Major duties of a Mechanical Engineer include; establishing routings, methods, layouts, tools, costs, methods documentation, quality plans and labor standards for revisions to current operations and/or new parts or programs of moderate scope, providing support and troubleshooting for current operations. Investigates, gathers and analyze data and implement solutions, innovating and implementing cost reduction, quality, safety and ergonomic improvement ideas of moderate scope, applying electronic tools across a broad range of applications, including e-builds, modeling and simulations, developing and implements plans to support lean manufacturing through the Deere Production System of moderate scope, designing operations layouts, improving material flow and material presentation, leading team studies related to capacity, energy, productivity and efficiency of moderate scope, leading analysis, development and implementation of new manufacturing processes and technology, analyzing and making modifications to existing performance pay plans; assisting in development of baseline data for new performance pay plans.

Some special skills and knowledge are required to pursue this career, including;knowledge of capital budgeting and capital equipment justification process, working knowledge of database management tools, the various loan accounting systems, and process management systems, background in Engineering, skill in using computer aided design and/or engineering tools, knowledge of manufacturing and/or distribution processes, quality, tooling, tool design, total preventative maintenance and facilities, understands the Enterprise Product Delivery Process (EPDP).

Specific education is required; formal education or training required to perform the essential functions of the job. Includes degrees, certifications, licenses and/or registration requirements, as well as a degree in an Engineering/Technology discipline or equivalent experience.

In conclusion, there is a lot of duties and responsibilities that comes with and engineering job anywhere, but since John Deere is such a big and well-known company your job will mean so much more, every little thing counts.