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(57) Abstract :
As polymer composite materials' characteristics are in many ways better to those of traditional metallic materials, their use in engineering applications is growing tremendously. The product development engineers began to focus more emphasis on the versatility of composite material manufacturing techniques as they sought to replace traditional materials for better performance in application-specific environments. However, there are numerous limitations to production methods, particularly when it comes to the problem of machining. The anisotropic nature of polymer composites makes it difficult for designers to choose the right machining techniques. The examination of milling operations on composites was considered in the current work. When compared to composite materials, milling of traditional materials is a well-established machining procedure. The examination of milling operations on composites was considered in the current work. When compared to composite materials, milling of traditional materials is a well-established machining procedure. The available literature offers plenty of room for additional research to build a solid understanding of the milling process and produce better-milled surfaces. Understanding the impact of cutting process parameters on the quality of the machined surface is the goal of this project. To comprehend the impact of machining process parameters such spindle speed, feed rate, and depth of cut on the surface quality, a study centred on the aforementioned needs to be conducted. Composite materials that are anisotropic fail in a different way than materials that are isotropic. Therefore, distinct machining techniques are needed to produce the improved surface quality. The milled surface quality of GFRP composites is greatly influenced by the nomenclature of the cutting tools. To achieve the appropriate surface quality, a different tool signature is needed; therefore tool signature customization is crucial. The use of standard end milling cutters will not give the opportunity to conduct the studies using the tool signature that is now accessible. Hence, there is little scope to vary the tool signature.

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