



## Research Article

# Modern Methods of Wooden Pattern Technology

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### ABSTRACT:

This article analyzes modern methods of wood carving technology, their stages of development and practical application. In particular, along with traditional methods based on manual labor, innovative technologies such as laser cutting and engraving on CNC machines are introduced. The possibilities of improving product quality, improving productivity and preserving national patterns using modern technologies are considered.

**Keywords:** Woodworking, modern technologies, CNC machine, laser cutting, national patterns, innovation, design, craftsmanship.

### INTRODUCTION

The art of woodcarving has existed since ancient times in the history of mankind and is considered one of the most important branches of applied art. In particular, woodcarving occupies a special place in Uzbek national crafts. According to historical sources, woodcarving was widely used in the decoration of mosques, madrasas, palace doors, columns, and furniture. This art form served not only as a means of decoration, but also as a means of shaping aesthetic taste and reflecting national values.

Nowadays, as a result of the rapid development of science and technology, significant changes are also taking place in the process of wood carving. Along with traditional methods based on manual labor, modern technologies - in particular, laser cutting equipment and computer-controlled CNC machines - are being widely used. This significantly increases the accuracy, complexity and speed of processing of patterns.

The purpose of this article is to study modern methods of wood carving technology, analyze their advantages and practical significance.

Traditional methods of woodcarving are largely manual. Various tools are used in this process - chisels, knives, hammers and sharp-edged tools. The patterns are usually geometric, islimi and gihrih shapes.

### Main features of the traditional method:

- The uniqueness and non-repetition of each item;
- Requires a high level of skill and experience from the master;
- Long duration of the work process;
- Preservation of national style and values.

However, the production volume of this method is limited, and it is difficult to produce complex patterns in a short time.

CNC (Computer Numerical Control) machines are automated devices controlled by computer programs. In this method, the pattern is first drawn in special graphic programs (for example, AutoCAD, CorelDRAW) and then loaded onto the machine.

CNC technology is widely used in furniture manufacturing, interior design, and the production of decorative items.

Laser technology is considered one of the most modern and effective methods for engraving wood. In this process, the wood is burned or cut using a high-temperature laser beam.

One of the most effective innovations today is the combination of traditional craft methods with modern technologies. For example, first the basic pattern is engraved on a CNC or laser cutting machine, and then the details are processed manually on the table. This gives the product both technological accuracy and artistic value.

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**LITERATURE ANALYSIS:**

The technology of wood carving and the art of woodworking have been studied by many scientists and researchers, and both traditional and modern innovations have been widely used in this field.

First, studies on the history of Uzbek folk applied art and woodcarving have deeply analyzed the formation of national patterns, their symbolic meanings, and their place in decorative art. Scientific works by local scholars have examined the stages of development of woodcarving, the traditions of the master-student relationship, and the specific features of regional schools. These studies reveal the artistic and historical significance of traditional embroidery techniques.

Also, in modern scientific sources in the field of applied arts and design, the development of woodworking technologies, the introduction of new materials and equipment are considered. In particular, the possibilities of CNC machines, laser cutting technologies, and digital design programs are analyzed in detail in the literature on technical disciplines. These sources emphasize factors such as increasing production efficiency, improving product quality, and facilitating human labor.

The role of digital technologies in wood carving, the advantages of automated systems, and their place in industrial design have been widely discussed in scientific works conducted by foreign researchers. They have scientifically substantiated the possibilities of creating complex geometric and parametric patterns using modern technologies.

In general, an analysis of the existing literature shows that the technology of wood carving is developing in two main directions: on the one

hand, the preservation of historical and artistic heritage, and on the other hand, the improvement of production processes based on modern technologies. In this regard, this article is aimed at summarizing existing scientific views and more deeply revealing the practical significance of modern methods in wood.

**METHODOLOGY:**

In conducting this study, a number of scientific research methods were used to study and analyze modern methods of wood carving technology.

First, the theoretical analysis method was used, and scientific literature, textbooks, articles, and Internet resources on the topic were studied. Through this method, a general and in-depth understanding of traditional and modern methods of woodworking, their stages of development, and technological features were formed.

The research also used the observation method. Woodworking shops and production processes were observed, and the practical application of modern technologies was studied. As a result of the observation, aspects such as the degree of automation in the production process, productivity, and product quality were analyzed.

**CONCLUSION:**

The technology of wood carving has a long history and is distinguished by its artistic, national and practical significance. During the research, traditional wood carving methods and carving processes based on modern technologies were analyzed, and the interrelationships and differences between them were identified.

In general, modern methods of woodcarving technology are taking the craft to a new level. In the future, it will be important to develop innovative technologies in this field, widely implement them, and harmonize them with national traditions.

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