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ИЗГОТОВЛЕНИЕ ЮВЕЛИРНЫХ ИЗДЕЛИЙ
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We are second-year students of Mechanical Technology Faculty at the Siberian Federal University. Our specialty is Technology of art processing of materials. We would like to tell you about ways of production of jewelry. Some of them appeared long ago, some ways of materials processing appeared recently.

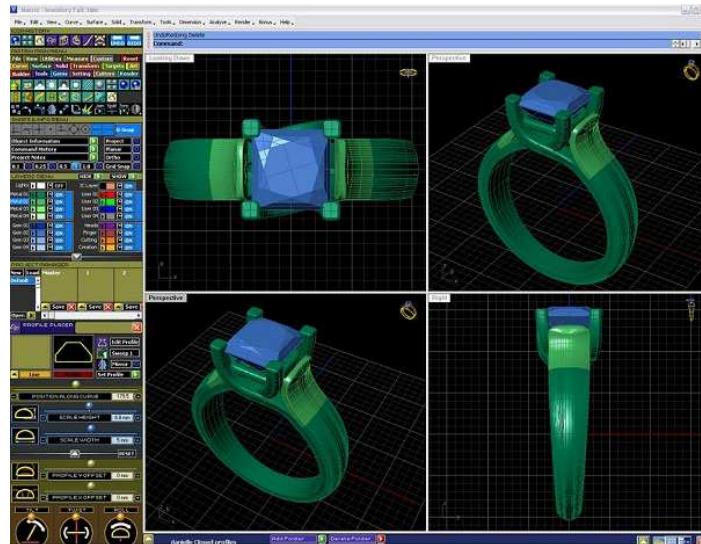
The most well-known ways are forging, coining, enamel, imprint, stamping, incrustation. Besides them there are such methods of materials treatment as: casting, carving, etching, nylon, polish, punching. Jewelry are mass produced and made individually.

Nowadays jewels are manufactured by casting in the enterprises and to make chains machine-tools are widely used Machine-made jewelry are of higher quality and cheaper than hand-made products. Though hand work still exists and it is of great value.

What is more future samples of jewelry for mass-production are often hand-made in the manufacturing process. However, great changes take place in this sphere because of computers use. Computers can make new samples by means of human commands. By the end of the 20-th century jeweler's art had been changed due to the science and technology progress. New materials, machine-tools modern equipment and instruments are at the jeweler`s disposal: palladium, titanium, nickel, anodic aluminum, various new alloys. New stones made by highly technological methods appeared that time. They imitate natural ones properly. Among them there is fianit created by Russian scientist, other stones which don`t exist in nature. Up-to-date technological equipment, devices and instruments working on the other principles than old ones appeared in the jewelry industry: electric furnaces, ultra-sound baths for jewelry, cleaning, vacuum installations for melting and pouring precious metals, super-accurate digital pyrometers for contactless measuring temperatures of alloys and computer-controlled machine-tools are in the list of innovations.

As for modern technologies of hand-made jewelry the process consists of several stages which last a week or a months, depending on many factors, products complexity included. To get astonishing result one must have the idea! It is embodied in a rough sketch including peculiarities of idea, features of future jewels. The finished sketch made by a designer is given to a jewelry artist, who draws three-dimensional 3D model in a professional

program Matrix 3D jewelry Design Software or the like.



It allows to determine the size of a future jewel diamond karats in a ring etc. The result of work is a CAD file which is used to grow a plastic model. The main thing in this stage of jewelry manufacture is a good mutual understanding between an artist and a jeweler, who will work with a «live» gold model. The artist can present a model looking like a photo that is he makes rendering of 3d model.

The next stage is producing a prototype of a jewel, growing a plastic model by means of a 3d printer. Solids cape from the CAD file made previously. The stage can last from 20 to 90 hours because a growing model is till 0,01 mm accuracy. After that melted gold or silver alloy is poured into a mold. A work piece produced by casting is processed in order to eliminate all draw backs in it.



A master-model (a processed work piece) is used to make a «rubber»- an elastic mould consisting of two halves. A «rubber» is necessary to get wax copies of a master-model for a future jewel.



Then a plaster mold is made in accordance with a wax mold to cast a gold jewel with «Diamond Expert» Cast work piece is just a semi –finished product that’s why it looks roughly. All castings are processed by a jeweler fastens a gem in the ring or in the other jewel. He also covers a jewel by rhodium makes s final polish and cleaning. The jewel is subjected to the quality control, marking and labeling. Specialists in this field make experts conclusion at the final stage.



To summarize above-mentioned information we can say that jewelers art continues traditions of old masters, saves and uses carefully great heritage of the past, enriches it by new ideas to meet the needs of modern life. As one can consider the process is very complicated and tedious but it is interesting and exciting. We’d like to say we are happy to be students at this faculty because we do our best to learn how to make astonishing jewels; In the nearest future well be qualified high-paid jewelers. There is nothing better in our opinion than to make beautiful jewelry which are admired by the nicest half of mankind.