Postgraduate Master Study Program – N2301 Mechanical Engineering

Branch of study: Manufacturing systems and processes Specialisation: Manufacturing systems

Programming Of Cnc Machines

Topics of professional debate for state final exam

1. Basic technical characteristics of NC / CNC machines - types of machines, types of control systems, basic overview.

2. Classification of NC / CNC machines in production systems, field of application.

3. Peripherals of CNC machines, tool magazines, conveyors, manipulators.

4. Basics rules of CNC machines design, types and principles of measurement systems.

5. Basic rules for configuration of movement and rotational axes on NC / CNC machines - coordinate system, definition and meaning of reference points.

6. Tools, measurement and meaning of tool offsets, precision of production. Meaning of the workpiece zero point setting.

7. Methods of converting the shape of the part into the final form of the NC program, the possibilities, advantages and disadvantages of the individual methods.

8. General procedure for preparation of CNC machines for automatic production of new parts.

9. NC program structure in ISO standard, general format of the NC program block.

10. Basic tool movements, rapid movement, linear and circular interpolations.

11. Miscellaneous functions (M function), feed, speed, tools, etc. functions - format and meaning.

12. Work cycles as commands in the NC program (in general) and their meaning.