



## **Mechanics and Machines, CAD ASM 2**

Top - Down approach: WAVE; Assembly Load Options

GOST Naming convention; Common Parts Library

Sequence (<Dis>Assembling animation)

# NX studying Guideline

Video



## О курсах. Порядок освоения. Отличия и особенности

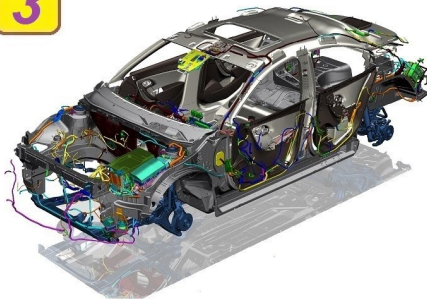


# Assembly Load Options

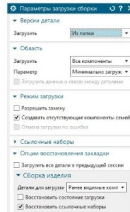
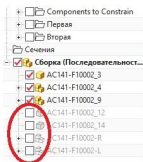
Video



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## Сборки в NX NX 1957



Опции загрузки сборки

Урок 3

Assembly

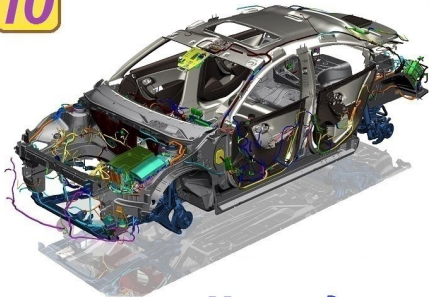
NX CAD

# Top-Down Design approach: WAVE

Video + labs/CAD\_ASM2/task\_data/wave\_tasks.zip



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## Сборки в NX

**NX 1957**



Межмодельные связи (WAVE) ч.1

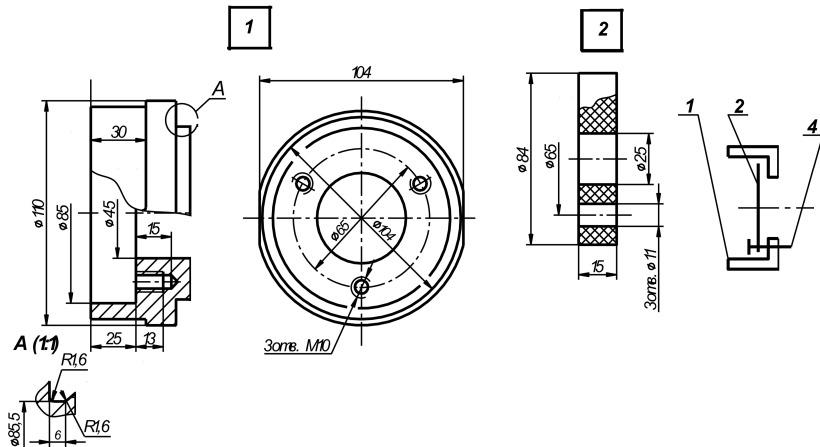
**Урок 10**

**Assembly**

**NX CAD**

# Practical Task 1

*Make 2 details and assemble them, using WAVE*




# Naming conventions

The root folder «<Name>(Part Number)».

## Subfolders:

- Information - specifications, descriptions, calculations of inertia, etc.
- Pictures - pictures from the project
- Components - purchased parts
- Simulation - assemblies for which simulation analysis is conducted. The common practice is to make a separate empty assembly, where the necessary part is inserted. This is necessary to reduce the time of loading the part (applicable to Inventor and SolidWorks).



```
1 EUROBOT (АИЦП.015.000)
2   |—Маяк (АИЦП.015.01.000)
3   |   |
4   |   | АИЦП.015.01.000.sldasm
5   |   | АИЦП.015.01.001.sldprt
6   |   | АИЦП.015.01.002.sldprt
7   |   | АИЦП.015.01.01.000.sldasm
8   |   | АИЦП.015.01.01.001.sldprt
9   |   |
10  |   | —Components
10  |   |   |
10  |   |   | DIN 912 M3 x 6.stp
11  |   |   |
12  |   | —Simulation
12  |   |   |
12  |   |   | АИЦП.015.01.01.000_sim.sldasm
13  |   |   |
14  |   | —[Information]
14  |   |   |
14  |   |   | Маяк (АИЦП.015.01.000)_смета.txt
15  |   |   |
16  |   | —[Pictures]
16  |   |   |
16  |   |   | fig1.png
17  |   |   |
18  |   |
19  | —Робот 1 (АИЦП.015.02.000)
19  |   |
19  |   | АИЦП.015.02.000.sldasm
20  |   | АИЦП.015.02.01.000.sldasm
21  |   | АИЦП.015.02.02.000.sldasm
22  |   | АИЦП.015.02.02.001.sldprt
23  |   |
24  |   | —Components
24  |   |   |
24  |   |   | DIN 7991 M4 x 8.stp
25  |   |   | pmd_vision_CamBoard_pico_flexx.STEP
26  |   |   |
27  |   | —Simulation
27  |   |   |
27  |   | —[Information]
27  |   |   |
27  |   |   | Робот 1 (АИЦП.015.02.000)_ведомость.txt
28  |   |   |
29  |   | —[Pictures]
29  |   |   |
30  |   |   |
31  |   |
32  |
33  |
34  |
35  |
```

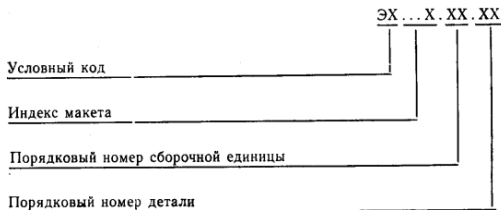
# Part Number (Обозначение)



It's taken from [GOST 2.201-80](#)

## Basic rules:

1. The assembly has 3 zeros at the end of the designation xxxx.xx.000
2. Part has a number other than zero at the end of the designation e.g. 001, 002
3. The number of dots indicates the nesting of the assembly or part



# Code Style Guide == GOST naming convention



1. Conforming to a style guide removes unneeded guesswork and ambiguities. For example, the full version helps to understand how to manufacture a detail just looked at the name.
2. It also allows for a more streamlined creation of code and its maintenance, because you *won't have to think about the style or how you should name a variable* — you simply follow instructions.
3. If you come to a **new team**, you **should follow their style guide — no questions asked**. You can suggest changes, of course, if you really feel it will be for the better, but otherwise — just work with their style guide

Code Style Guide — team or company level, GOST naming convention — country level!!

You are *living* in Russia and *have to follow GOST*



# Practical aspects of using namings



Обозначение	АНЦП.999.01.000-02
Наименование	Стрирус сегментный, ноги под углом
^ Материал	
Материал	Сталь 10 ГОСТ 1050-2013
v Графическое отображение материала	
v Расчет МЦХ	

Код	Наименование
СБ	Сборочный чертёж
В0	Чертёж общего вида
Т4	Теоретический чертёж
Г4	Габаритный чертёж
МЭ	Электромонтажный чертёж
МЧ	Монтажный чертёж
УЧ	Упаковочный чертёж
МС	Электронная модель: сборочной единицы
ЭСБ	Электронная модель: сборочной единицы
МД	Электронная модель: детали

KOMPAS 3D

Component Properties

Assembly | **Attributes** | Mass | Part File | General | Parameters

Context

Interaction Method: Traditional

Apply to: Component

Component Attributes

☒ All ☐ Required ☐ Unset

Title/Alias	Value	Units	T...	Type	R...	I...
- <No Category>						
DecimalNumber	MAM2023.01.01.001			String		
Detail name	Это База			String		
DB Component Instance						
CALLOUT	<No Value>			String		

Siemens NX

# Common Parts Library (Reuse Library)

It's a set of commonly used components (screws, T-slots, etc) for designing and manufacturing device products.

## Black-Oxide Alloy Steel Socket Head Screw

M5 x 0.8 mm Thread, 10 mm Long



Packs of 100

In stock

\$10.69 per pack of 100

91290A224

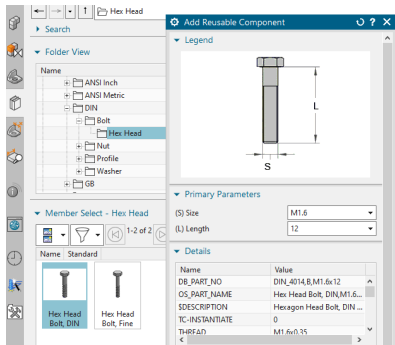
ADD TO ORDER



3-D STEP

Download

McMaster-CARR (from Fusion 360)



NX Reuse Library

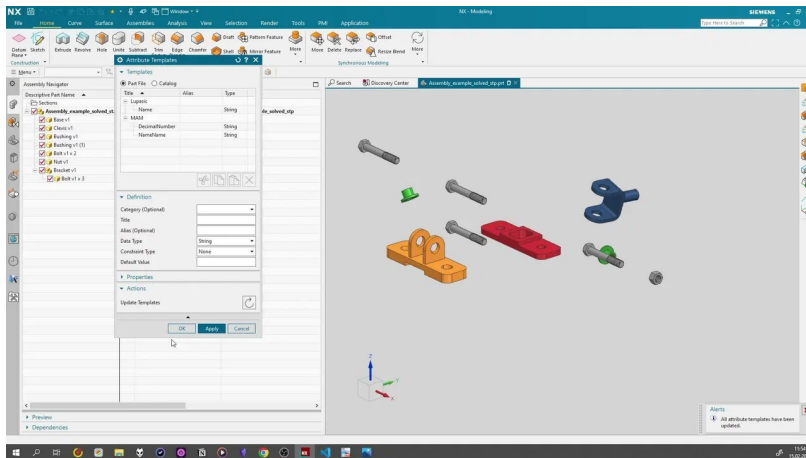


- Not to forget what do you need to buy and their quantity
- To estimate the a manufacturing time

[illegible]

# Bill of Materials in NX

## Video

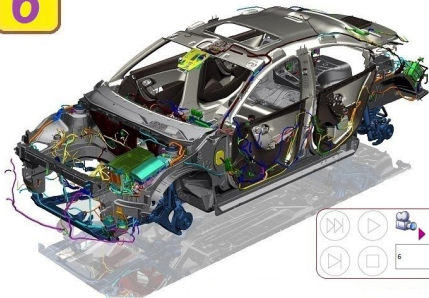


# Sequence (<dis>assembling animation)

Video + labs/CAD\_ASM2/task\_data/sequence\_task.zip

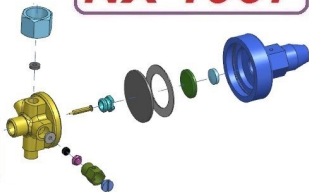


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## Сборки в NX

**NX 1957**



Создание последовательности

**Урок 6**

**Assembly**

**NX CAD**

# Deserve "A" grade!

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📍 @Lupasic

🏢 Room 105 (Underground robotics lab)