



## **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

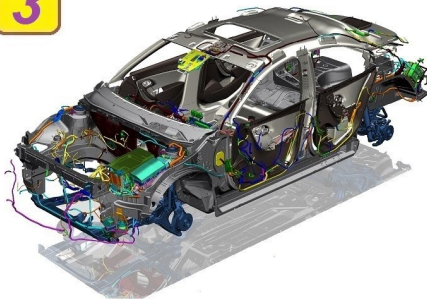


# Assembly Load Options

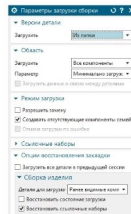
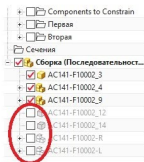
Video



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## Сборки в NX NX 1957



Опции загрузки сборки

Урок 3

Assembly

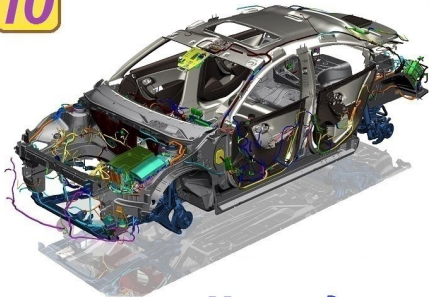
NX CAD

# 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

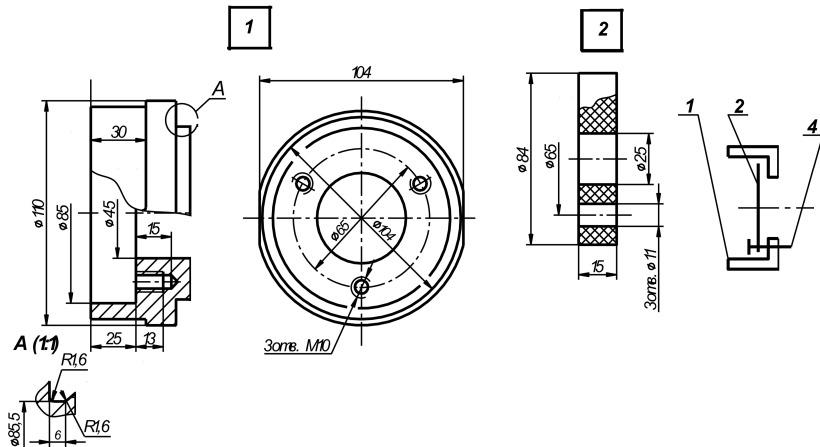
**Урок 10**

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

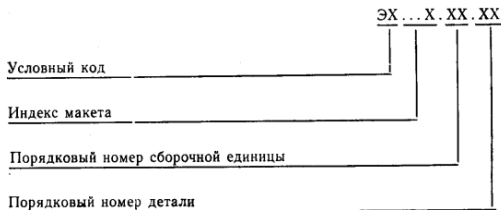
# Part Number (Обозначение)



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	Стриус сегментный, ноги под углом
^ Материал	
Материал	Сталь 10 ГОСТ 1050-2013
v Графическое отображение материала	
v Расчет МЦХ	

Код	Наименование
СБ	Сборочный чертеж
В0	Чертеж общего вида
Т4	Теоретический чертеж
Г4	Габаритный чертеж
МЭ	Электромонтажный чертеж
МЧ	Монтажный чертеж
УЧ	Упаковочный чертеж
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

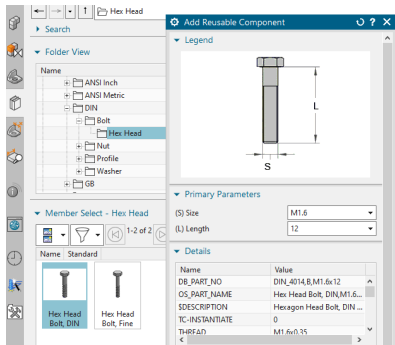
ADD TO ORDER



3-D STEP

Download

McMaster-CARR (from Fusion 360)

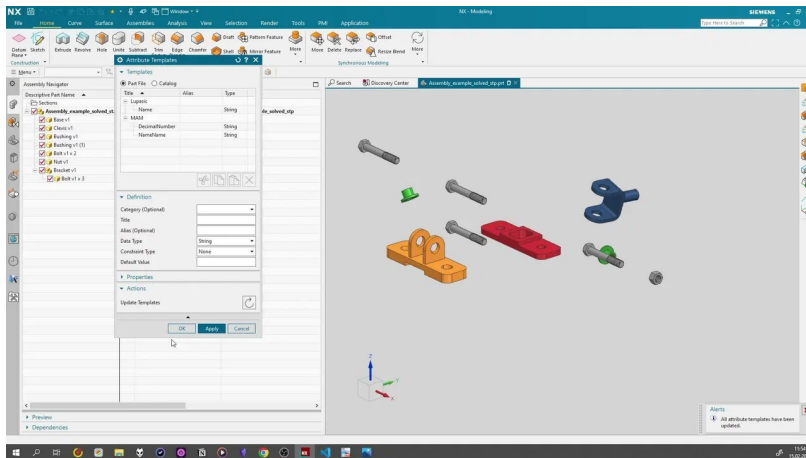


NX Reuse Library



# Bill of Materials in NX

## Video

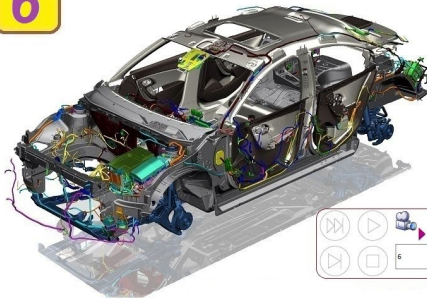


# Sequence (<dis>assembling animation)

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

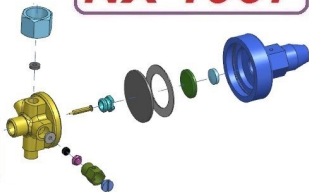


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## Сборки в NX

**NX 1957**



Создание последовательности

**Урок 6**

**Assembly**

**NX CAD**

# Deserve "A" grade!

– Oleg Bulichev

✉ o.bulichev@innopolis.ru

📍 @Lupasic

🏠 Room 105 (Underground robotics lab)