BABELE

*BAB*el *E*xperience & *LE*ssons

Agostino G. Bruzzone
DIPTEM University of Genoa

Antonio Martella
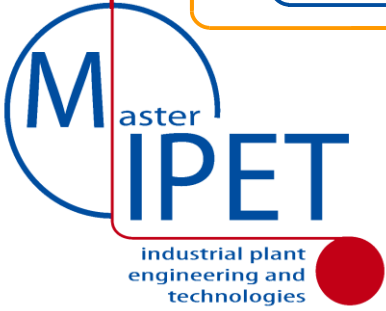**Simulation Team**

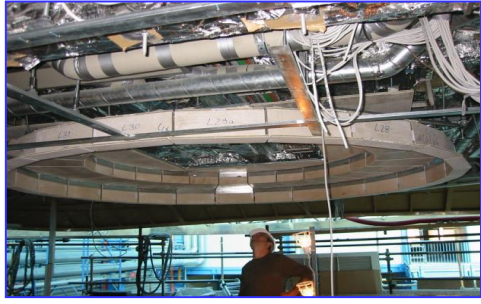*Prof. A.G.Bruzzone*
MIPET Director

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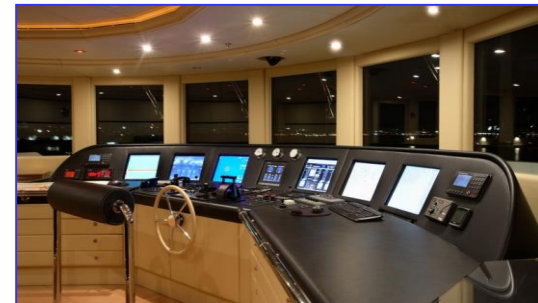*Genoa University*

mipet@simulationteam.com

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Greenfield… to Plant

Before

After

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MIPET Director

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Inspiration

Et dixerunt: " Venite, faciamus nobis civitatem et turrim, cuius culmen pertingat ad caelum, et faciamus nobis nomen, ne dividamur super faciem universae terrae ".

Descendit autem Dominus, ut videret civitatem et turrim, quam aedificaverunt filii hominum,

et dixit Dominus: " Ecce unus est populus et unum labium omnibus; et hoc est initium operationis eorum, nec eis erit deinceps difficile, quidquid cogitaverint facere.

Venite igitur, descendamus et confundamus ibi linguam eorum, ut non intellegat unusquisque vocem proximi sui ".

Atque ita divisit eos Dominus ex illo loco super faciem universae terrae, et cessaverunt aedificare civitatem.

Et idcirco vocatum est nomen eius Babel, quia ibi confusum est labium universae terrae, et inde dispersit eos Dominus super faciem universae terrae

Genesi, XI, 4-9

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Objective

Work objectives are classified in two categories:

◆ Project Management Experience in

● Communication Problem

● Control Problem

● Planning Problem

◆ Analysis and Synthesis of each Team

● Result Valorisation

● Problem Detection & Identification

● Synthesis on Learned Lessons

Team Work

Work is based on team organization based on functions,
with individuals cooperating for common interest

LUCE

ACQUA

TERRA

FLORA

ASTRA

FAUNA

Teams compete each other in order to get best project evaluation

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MIPET Director

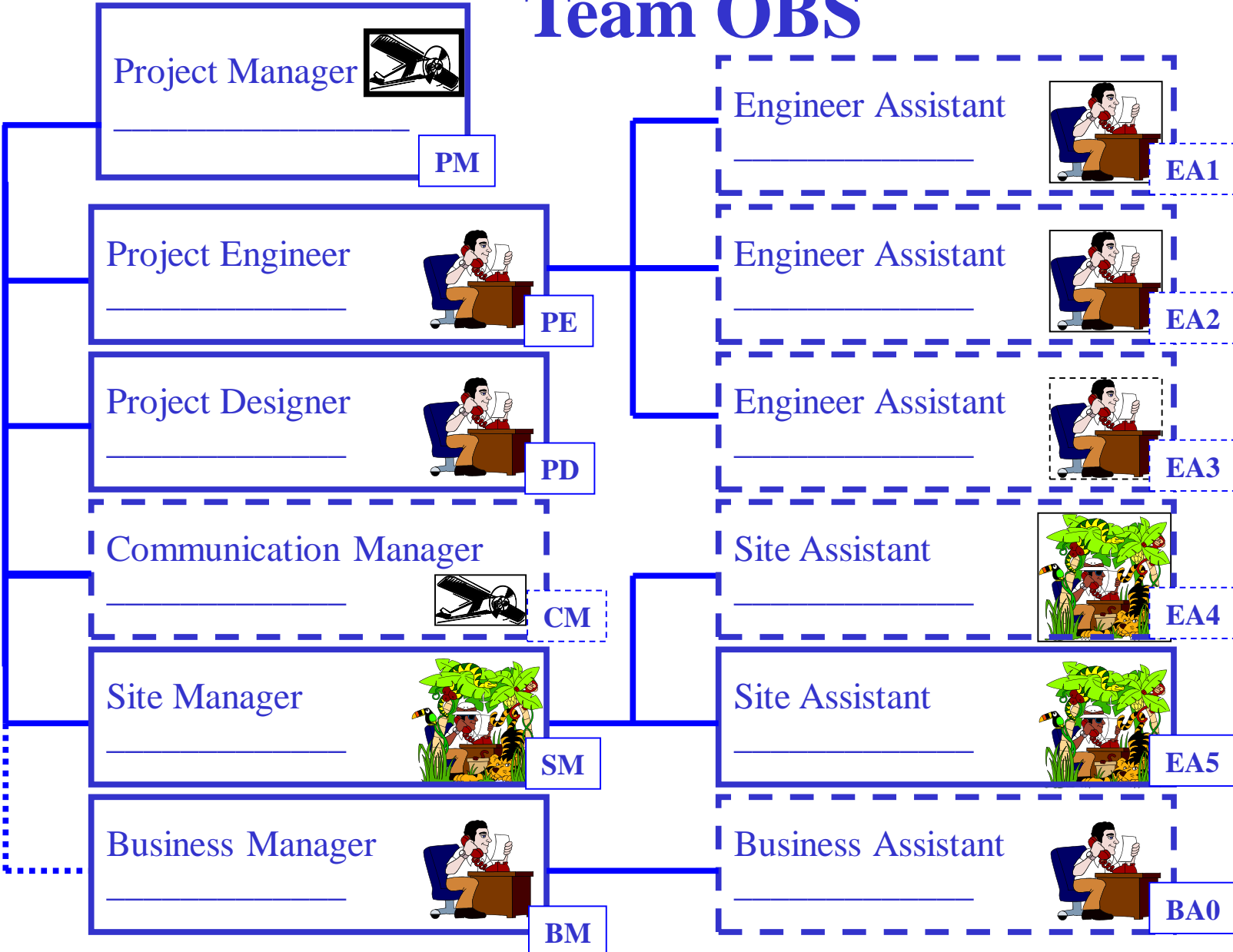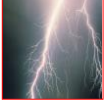**www.itim.unige.it/mipet**

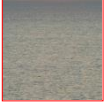*Copyright © 2016*
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Team OBS

Outline your Team:

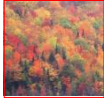LUCE

ACQUA

TERRA

FLORA

ASTRA

FAUNA

Project Manager
_____
PM

Project Engineer
_____
PE

Project Designer
_____
PD

Communication Manager
_____
CM

Site Manager
_____
SM

Business Manager
_____
BM

Engineer Assistant
_____
EA1

Engineer Assistant
_____
EA2

Engineer Assistant
_____
EA3

Site Assistant
_____
EA4

Site Assistant
_____
EA5

Business Assistant
_____
BA0
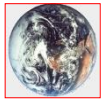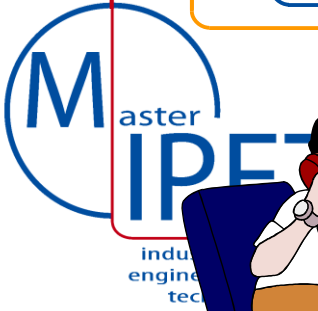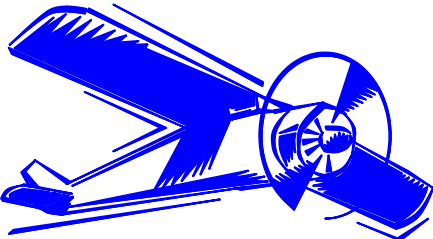
Office vs. Site

People assigned to O*ffice* is not enabled to leave *Office* area.

People assigned to *Site* (Construction site) is not enabled to leave the *Site*.

This approach allows to reproduce the communication problem: i.e. impossibility to move an entire technical office on site.

People enabled to travel are free to move between *Site* e *Office*.

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Team Functions: Coordination

Project Manager: He is responsible of the Project and manages Resources, but he cannot reassign their tasks.
He is free to move between *Site* and *Office*.
He Signs all the documents to be presented to the Customer.

Communication: He is responsible of all the communications
Manager He is free to move between *Site* and *Office*.
He acts as Project Manager Representative if necessary and if authorized by Project Manager.

Business: He is Responsible of quality control and **Manager** containment of **UCsq** respecting design.

He cannot leave from *Office*.
He is responsible of official project documentation index and related coding.
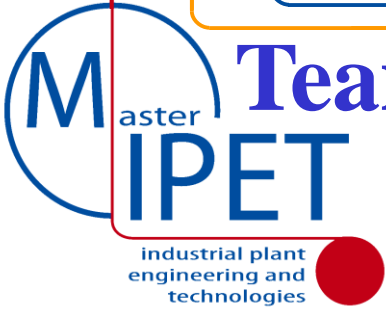as well as UCsq computations.

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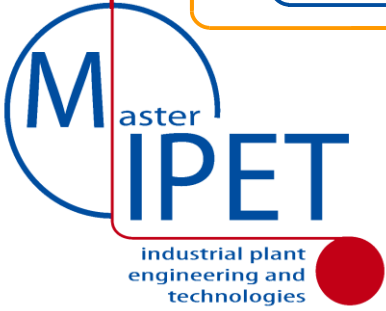8
8

Team Functions: Technical Roles

Project Engineer: He is responsible of the Project Engineering.
He manages the people assigned to him.
He cannot leave from *Office*.
He is responsible of developing technical
Drawings and technical details and
overall engineering.
He can sign technical documents.

Project Designer: He is responsible for architectural design
He cannot leave from *Office*.

Engineer : He produces the drawings and technical stuff.
Assistant He works under Project Engineer supervision
He cannot leave from *Office*.

Business : He works under Business Manager supervision
Assistant He Develops UCsq computations
He cannot leave from *Office*.

Team Functions: Site

Site Manager: He is responsible for Construction Site and materials.

He directs people assigned to his staff.

He cannot leave from *Site*.

He is requested to proceed on constructions just based on technical documents already accept by the customer.

Site Assistant: He works on construction execution

He works under Site Manager supervision.

He cannot leave from *Site*.
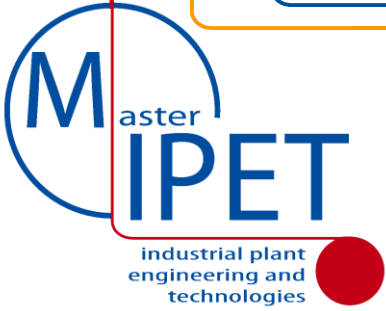
# Basic Regulations

▽ Unless the instructions specifically state that something is permitted it shall be assumed to be prohibited.

▽ In case of uncertainty contact the customer before to act improperly or break regulations/policies.

▽ Each error is punished by a penalty; the penalties represents a critical parameter for team evaluation.

▽ Proper control of Quality/Development Time Ratio is the critical parameter for final evaluation

▽ Pay Attention to the Documentation.
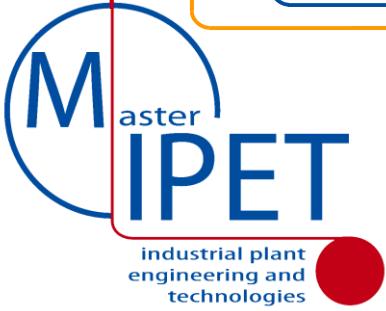
▽ Awards to the Winners
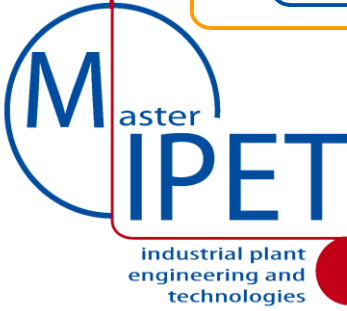
Documentation Requirements

In Each official documents is required:

- *Emission DATE and TIME*

- *Progressive Code Number with reference to an official index maintained by **BM***

- *Signature of Project Team Responsible*

- *Formal Approval of the Customer*

- *Emission of Customer Copy and File Archiving c/o Project Team responsible (i.e. Site)*
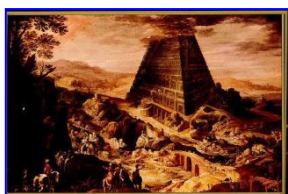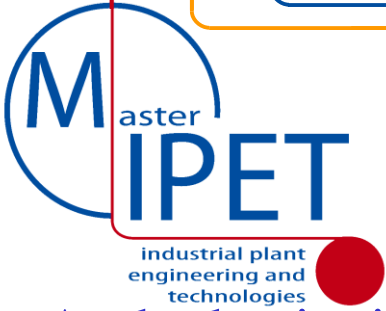
Site Construction

It is forbidden to start any kind of construction or assembling without complete documentation signed by responsible and approved by the customer.

Copy of all the construction documents shall be included in site archives for checkup and audit activity.

In Site Activity it is very important to keep full control of the inventory without losing any single construction item.

The saving of Material is calculated as the UCsq of the

material used on each layer, so the total number of items

computed in term of UCsq

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Inventory

At the beginning and at the end of the project it shall be completed a material inventory on the Site, stating in detail for each item box received the following data:
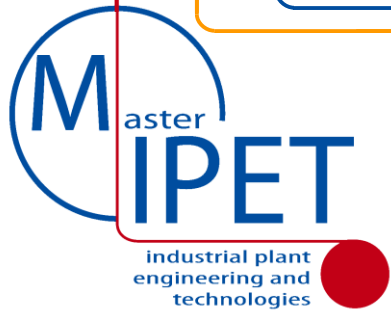
Effective and Expected number of items for each Category

Physical Disposition of the Items on a board in order to support an inventory audit (for each item box).
It is forbidden to move items between *Site* and *Office* and viceversa.
Special approval for enabling
this possibility should be requested
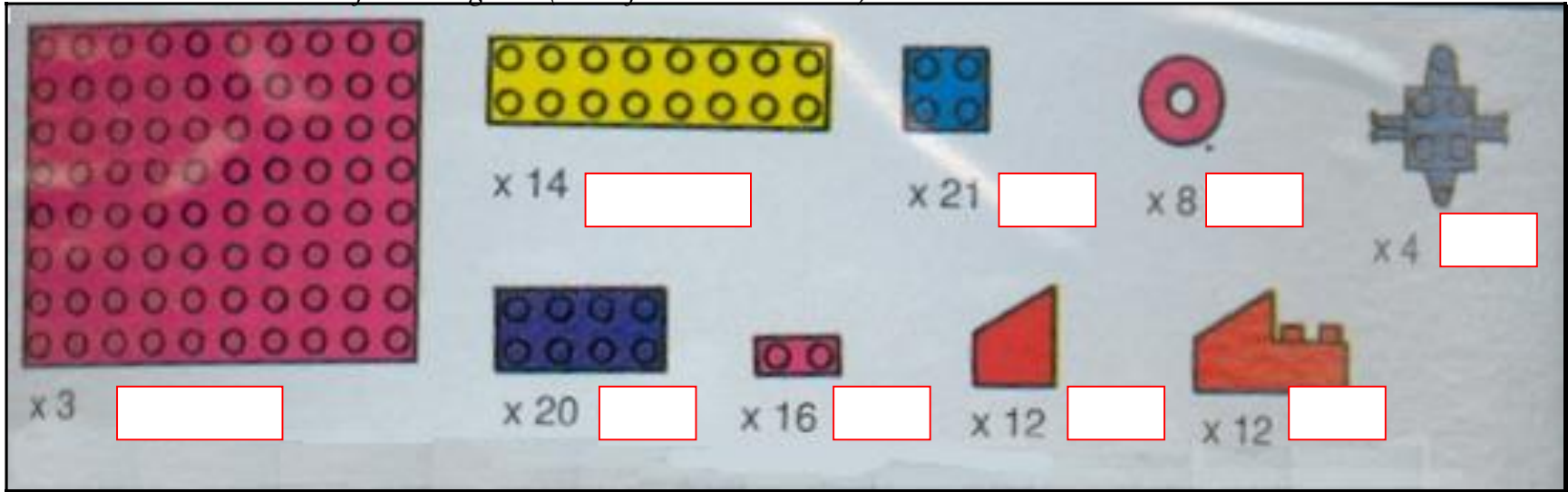by Project Manager to the customers.

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Inventory Form

Team Name:_____

ITEM BOX Number: _____

Document Code and Description:_____

Each Item Box Includes the following UC (Unit for Construction):

x 14 [ ]   x 21 [ ]   x 8 [ ]   x 4 [ ]

x 3 [ ]   x 20 [ ]   x 16 [ ]   x 12 [ ]   x 12 [ ]

Include in the Form the Value representing the effective configuration of the Item Box.

Date and Time: _____

Responsible Signature:_____

Customer Approval:_____

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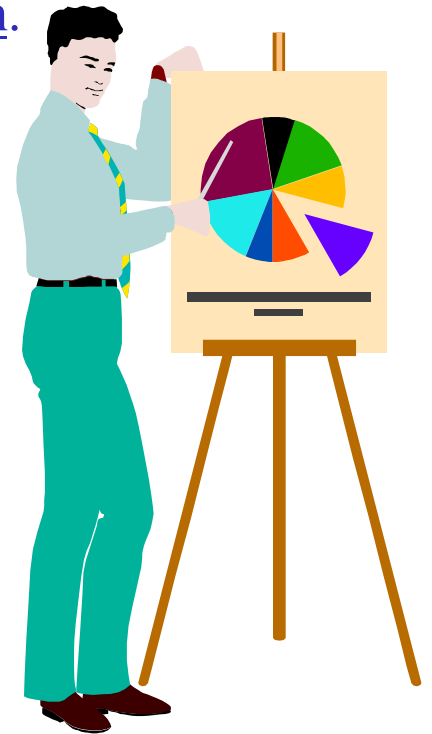Copyright © 2016
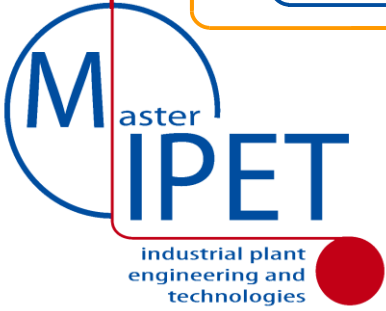Genoa University
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Final Presentation

- Final Summary is presented by Business Manager in <u>English</u>.
- Summary duration is <u>10 minutes</u> maximum.
- Presentation summarizes project development.
- Presentation is an element for project evaluation.
- Presentation shall be completed Orally and/or with Powerpoint.

The goal of the presentation is to provide a critical summary of work performed, with highlights on critical issues, solution identified and learned lessons.
The presentation need to include a critical self-evaluation of Team Activity and coordination.

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Technical Requirements

The team is requested to design and construct a Tower, using the construction material provided and respecting following regulations:

- **Total Height passing 25 UCSh (~50 cm).**

- **Total Surface (to be computed as sum of all the floors) passing 400 units UCSq (~900cm^2).**

- **Each floor need to be "Closed", excluding windows and balcony; this corresponds to respect of Perimeter (UCSCC criteria)**
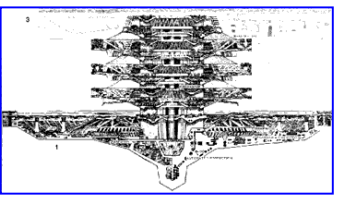
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Units of Measure

Each Floor corresponds to a planar layer of UC:

UCS (Unit for Construction Standard) is represented by the following item, while UCSl (Length Unit for Construction Standard) is defined as:

(Length 4 UCSl and Width 2 UCSl)

UCSh (High Unit for Construction Standard) is defined as:

(High 1 USCh) it is corresponding to ~2 cm at assembling completion

UCSq (Surface Unit for Construction Standard) is defined as:

(8 UCSq) this corresponds to about 2.25 cm^2

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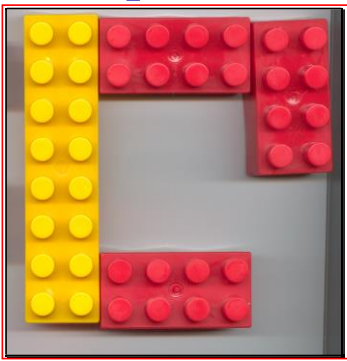
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Computational Criteria

UCSCC Criteria (Closed Perimeter Criteria) requires that the total of open parts of the perimeter not exceeds 20% of the overall length of the perimeter itself:

(16 UCSl with open window of 2 UCSl = 2/16 <= 20%)

The layer surface is computed as the internal area inside the closed perimeter delimitating it:

(20 UCSq)

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19
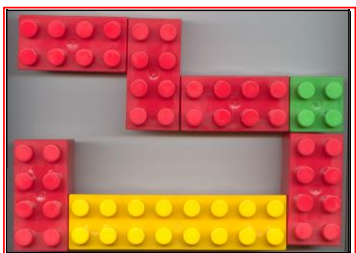
Activity Checklist

- Filling and Delivery Project Team OBS Form
- *Office* Preparation by Office Group
- Site Group Transfer and *Site* preparation
- Acquisition of Materials by Site Group from Customer
- Material Invetory at the Project Start
- Tower Design Sketches: Overall 3D and Prospective.
- Plan Drawing of each Floor Layer and UCsq computation
- Project Review for each 10 Floor design completion
- Completion of Constructions and Changes required by Customer
- Computation of Material used for the Construction
- Customer Evaluation and Approval
- Dismounting the Construction
- Material Inventory at the conclusion of the project
- Material Packaging in the Item Boxes
- Presentation of the Final Report

Each Phase Requires Customer Approval

PM

QM

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Customer Requirement Evolution

Project Scheduling

Explanation: *T0*

Team Composition and Startup: *T0 + 60 min*

Construction and Delivery: *T0 + 3 h*

Inventory & Packaging: *T0 + 3 h 30 min*
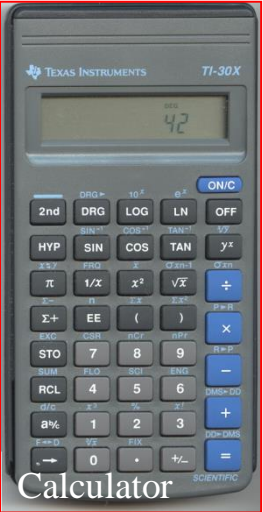
Final Report Presentations: *T0 + 4 h*

free   *T0 + 4 h 30 min*

Supports & Tools

Disk

Anti-Stress

CD Burner

Pen

Ink

Calculator
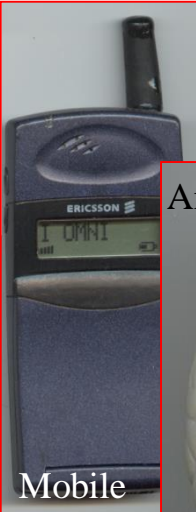
Mobile
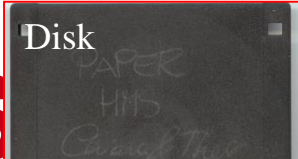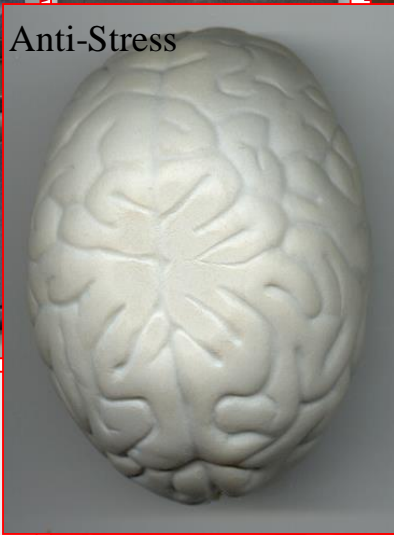
Keyboard

Pencil

Stress

Calipers

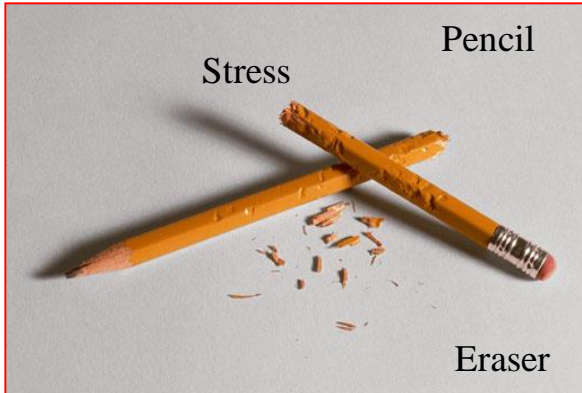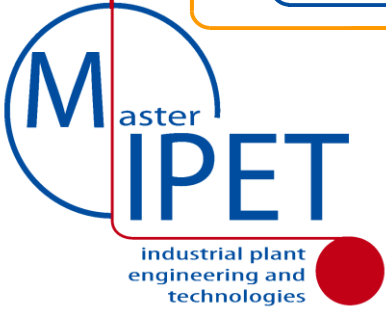**Hand**

Eraser

It is possible to use any Support (including strange anti-stress devices), *however please note that all the documents are required to be produced in paper hardcopy.*

Sheets

Evaluation Criteria

The project evaluation is based on the technical quality, aesthetic design, successful completion of the mission, requirement satisfaction, saving in term of UCsq used and final presentation.

Errors, Documentation Omissions, Execution Delays, Inconsistencies, Not Professional Behaviors, Material Losses and/or improper use/assignation of construction items
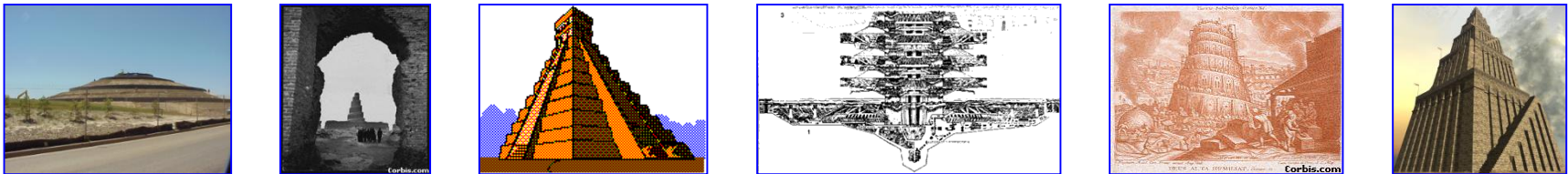
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Good Luck

	Luce	Acqua	Terra	Flora	Astra	Fauna
Requirement Height						
Requirement Tot. Surface						
Item Used						
Aesthetic Factor & UCsq						
Design & Eng.						
Construction						
1st Review						
2st Review						
3st Review						
Penalties Office.						
Penalties Site						
Office/Site Inconsistencies						
Material Management On						
Material Management Off						

Work Inspiration
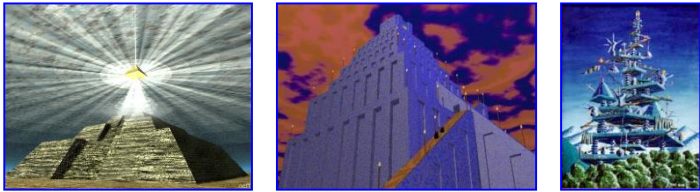
And, if thou prate of mountains, let them throw
Millions of acres on us, till our ground,
Singeing his pate against the burning zone,
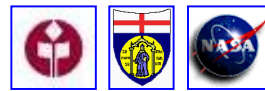Make Ossa like a wart!   *Hamlet Act 5, Scene 1*

Babel is Here !

Looking Forward

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TEAM OBS

Note:_____

Please check your Team:

LUCE

ACQUA
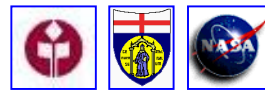
TERRA

FLORA

ASTRA

FAUNA

Project Manager

_____ **PM**

Project Engineer

_____ **PE**

Project Designer

_____ **PD**

Communication Manager

_____ **CM**

Site Manager

_____ **SM**

Business Manager

_____ **BM**

Engineer Assistant

_____ **EA1**

Engineer Assistant

_____ **EA2**

Engineer Assistant

_____ **EA3**

Site Assistant

_____ **EA4**

Site Assistant

_____ **EA5**

Business Assistant

_____ **BA0**

TEAM OBS

Note:_____

Project Manager
_____
PM

Project Engineer
_____
PE

Project Designer
_____
PD

Communication Manager
_____
CM

Site Manager
_____
SM

Business Manager
_____
BM

Engineer Assistant
_____
EA1

Engineer Assistant
_____
EA2

Engineer Assistant
_____
EA3

Site Assistant
_____
EA4

Site Assistant
_____
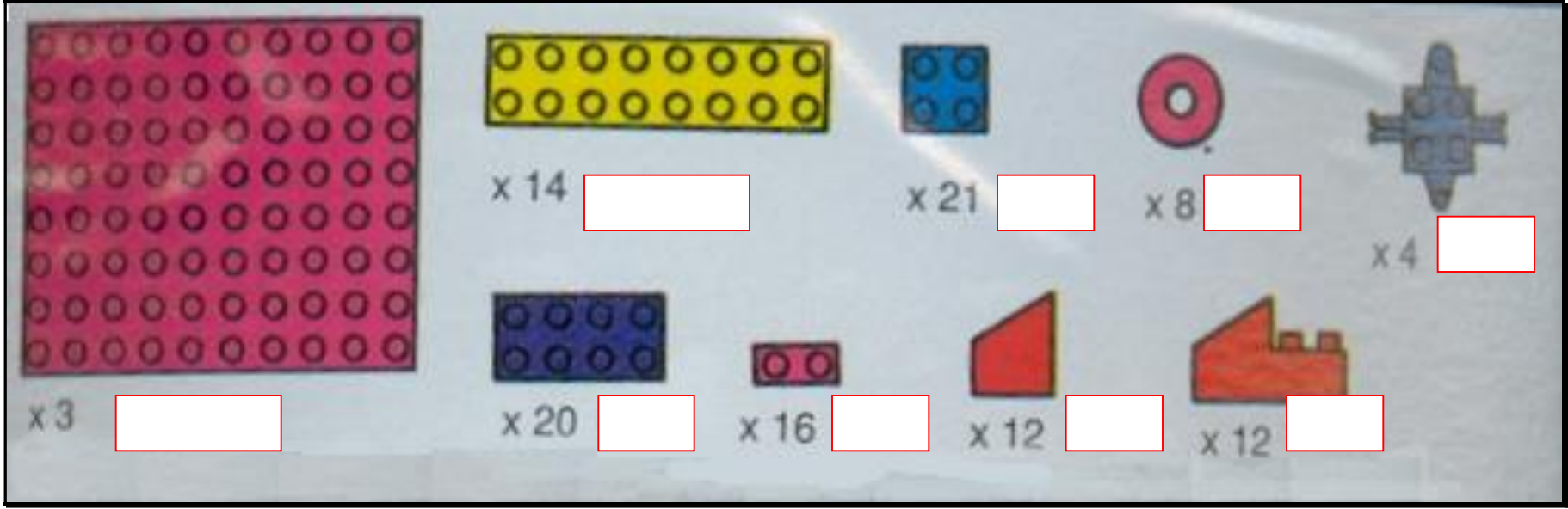**EA5**

Business Assistant
_____
BA0

INVENTORY Form 1

Team Name:_____

Document Code and Description:_____

ITEM BOX Number: _____

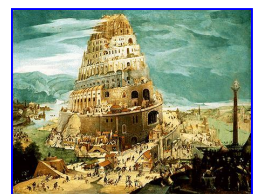Each Item Box Includes the following UC (Unit for Construction):

x 14 [____]

x 21 [____]

x 8 [____]

x 4 [____]

x 3 [____]

x 20 [____]

x 16 [____]

x 12 [____]

x 12 [____]

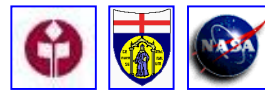**_Include in the Form the Value representing the effective configuration of the Item Box._**

Date and Time: _____

Responsible Signature:_____
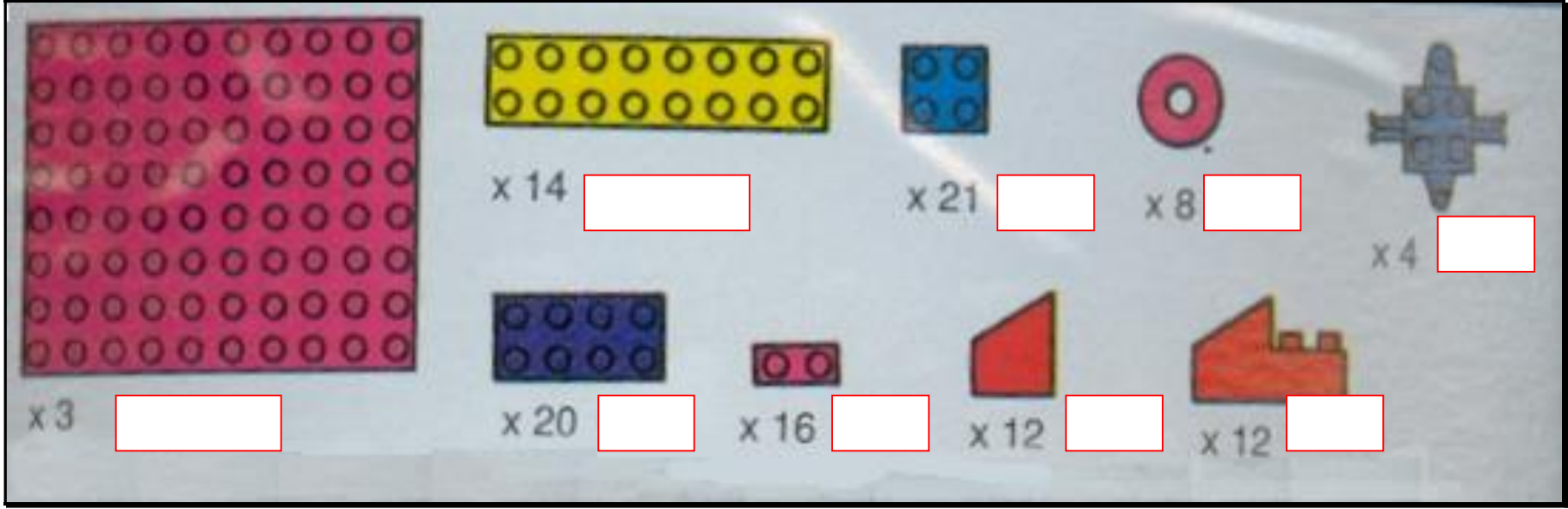
Customer Approval: _____

INVENTORY Form 2

*Team Name:*_____

*Document Code and Description:*_____

ITEM BOX Number: _____

Each Item Box Includes the following UC (Unit for Construction):

x 14 [   ]   x 21 [   ]   x 8 [   ]   x 4 [   ]

x 3 [   ]   x 20 [   ]   x 16 [   ]   x 12 [   ]   x 12 [   ]

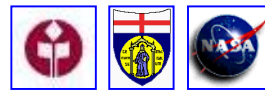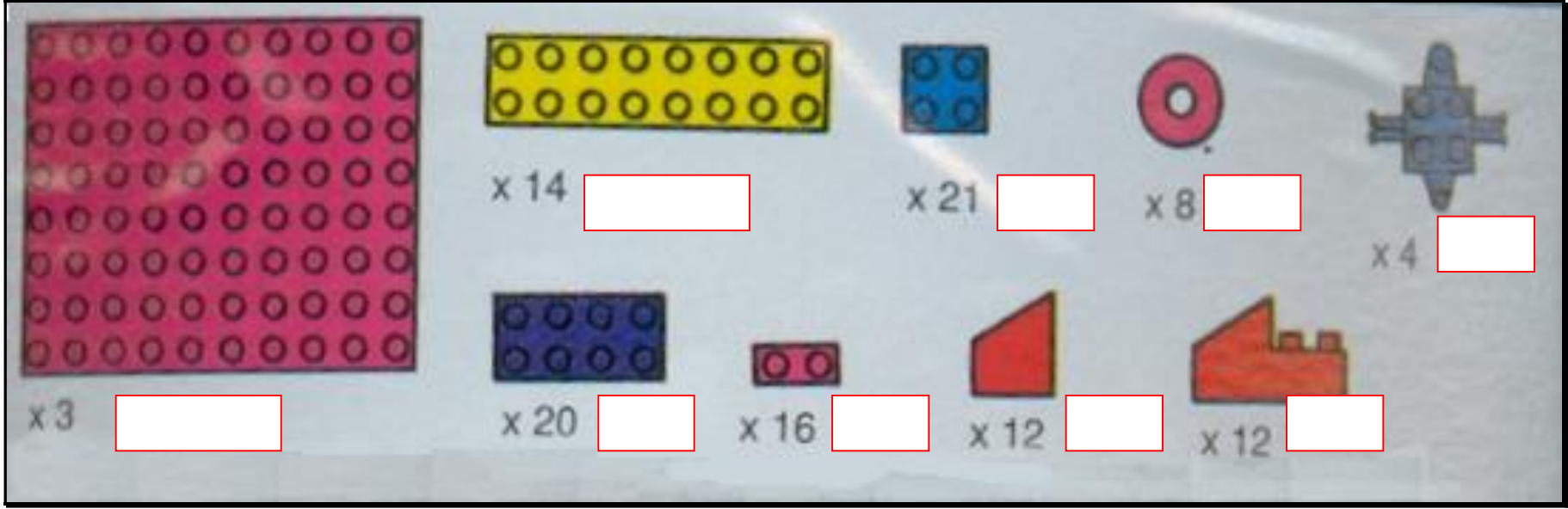**<u>Include in the Form the Value representing the effective configuration of the Item Box.</u>**

Date and Time: _____

*Responsible Signature:*_____

Customer Approval: _____

INVENTORY Form 3

*Team Name:*_____

*Document Code and Description:*_____

ITEM BOX Number: _____

Each Item Box Includes the following UC (Unit for Construction):

x 14 [ ] x 21 [ ] x 8 [ ] x 4 [ ]

x 3 [ ] x 20 [ ] x 16 [ ] x 12 [ ] x 12 [ ]

<u>Include in the Form the Value representing the effective configuration of the Item Box.</u>
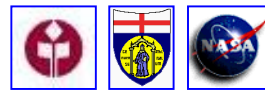
Date and Time: _____

*Responsible Signature:*_____

Customer Approval: _____

INVENTORY Form 4

Team Name:_____

Document Code and Description:_____

ITEM BOX Number: _____

Each Item Box Includes the following UC (Unit for Construction):

x 14 [ ]

x 21 [ ]

x 8 [ ]

x 4 [ ]

x 3 [ ]

x 20 [ ]

x 16 [ ]

x 12 [ ]

x 12 [ ]

Include in the Form the Value representing the effective configuration of the Item Box.

Date and Time: _____

Responsible Signature:_____
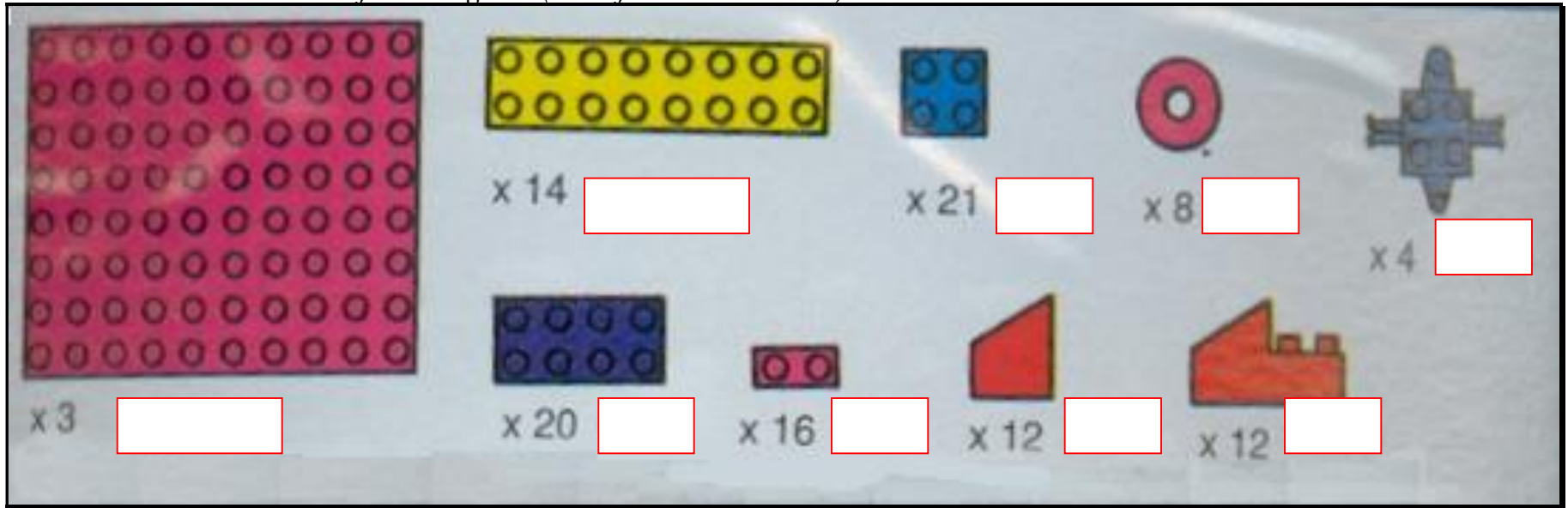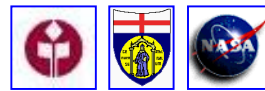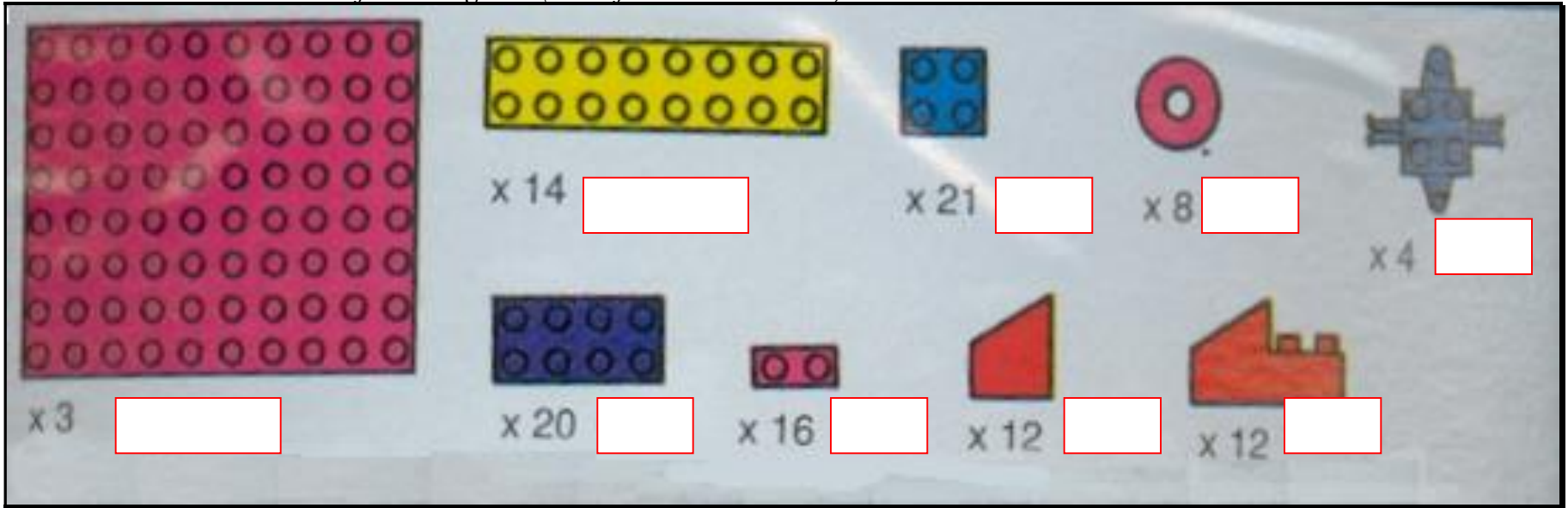
Customer Approval: _____

INVENTORY Form 5

Team Name:_____

Document Code and Description:_____

ITEM BOX Number: _____

Each Item Box Includes the following UC (Unit for Construction):

x 14 [ ]

x 21 [ ]

x 8 [ ]

x 4 [ ]

x 3 [ ]

x 20 [ ]

x 16 [ ]

x 12 [ ]

x 12 [ ]

Include in the Form the Value representing the effective configuration of the Item Box.

Date and Time: _____

Responsible Signature:_____

Customer Approval: _____