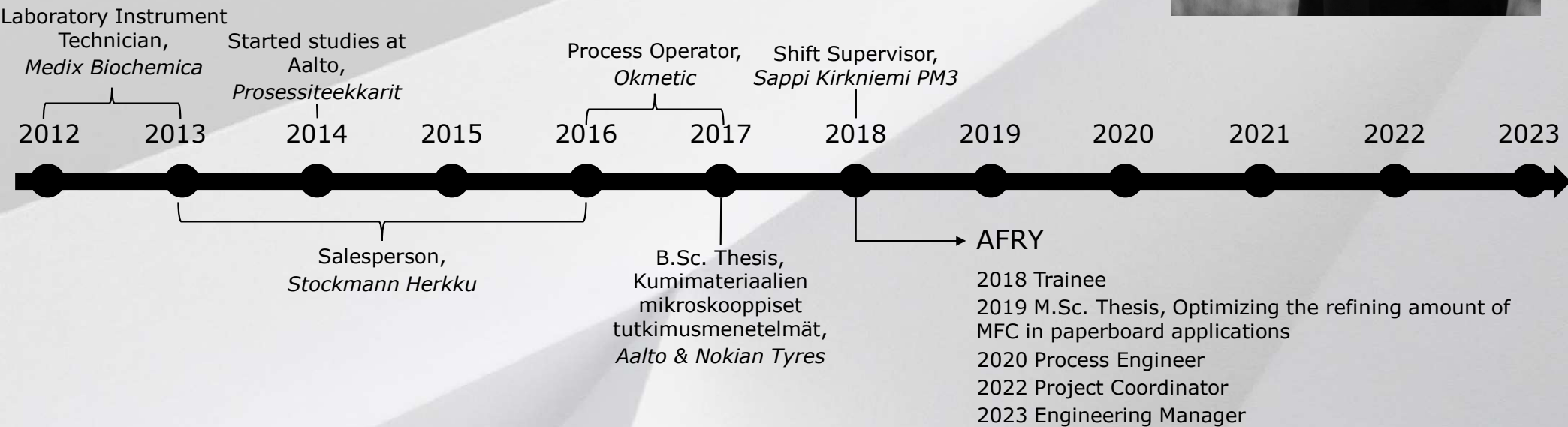


A man with a goatee and glasses, wearing a purple jacket, is shown in profile, looking out over a cityscape. The background is a blurred view of a city with mountains in the distance. The text "AFRY for students" is overlaid on the left side of the image.

# AFRY for students

MY CAREER DEVELOPMENT

# Aurora Arkima, Engineering Manager



# AFRY is an international engineering, design and advisory company

We are

**17,000**

employees

We speak  
more than

**50**

languages

Offices in  
more than

**40**

countries

Projects in

**100**

countries

Annual revenue

**~2**

billion EUR

# AFRY helps clients all around Finland

About

2,800

employees

Offices in

~30

locations

From Hanko  
to Kittilä



A woman with long, dark, wavy hair is wearing a black turtleneck and a black coat with a silver belt buckle. She is standing in front of a wall made of light-colored wood panels. The background is a clear blue sky. The overall mood is professional and modern.

OUR MISSION

We accelerate the  
transition towards a  
sustainable society

# Our offerings in six divisions

## Infrastructure



Real estate  
Rail & Road  
Architecture  
Environment  
Water

## Industrial & Digital Solutions



Food & Life Science  
Product and  
Software Design  
Automation  
Defense

## Process Industries



Pulp & paper  
Mining & Metals  
Steel Industry  
Oil & Gas

## Energy



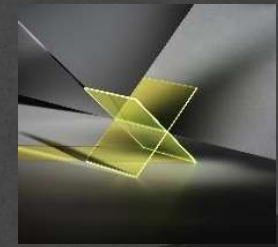
Hydro  
Renewables  
Nuclear  
Transmission &  
Distribution

## Management Consulting



Bioindustry  
Energy  
Capital  
Industry

## AFRY X



Digital services  
and products

A photograph of two young women with long hair, wearing winter coats and hats, riding bicycles on a city street. They are smiling and looking at each other. The background shows a blurred city scene with trees and buildings. The image is overlaid with a semi-transparent dark grey layer containing white text.

We offer students...

Intern-  
ships

Summer  
jobs

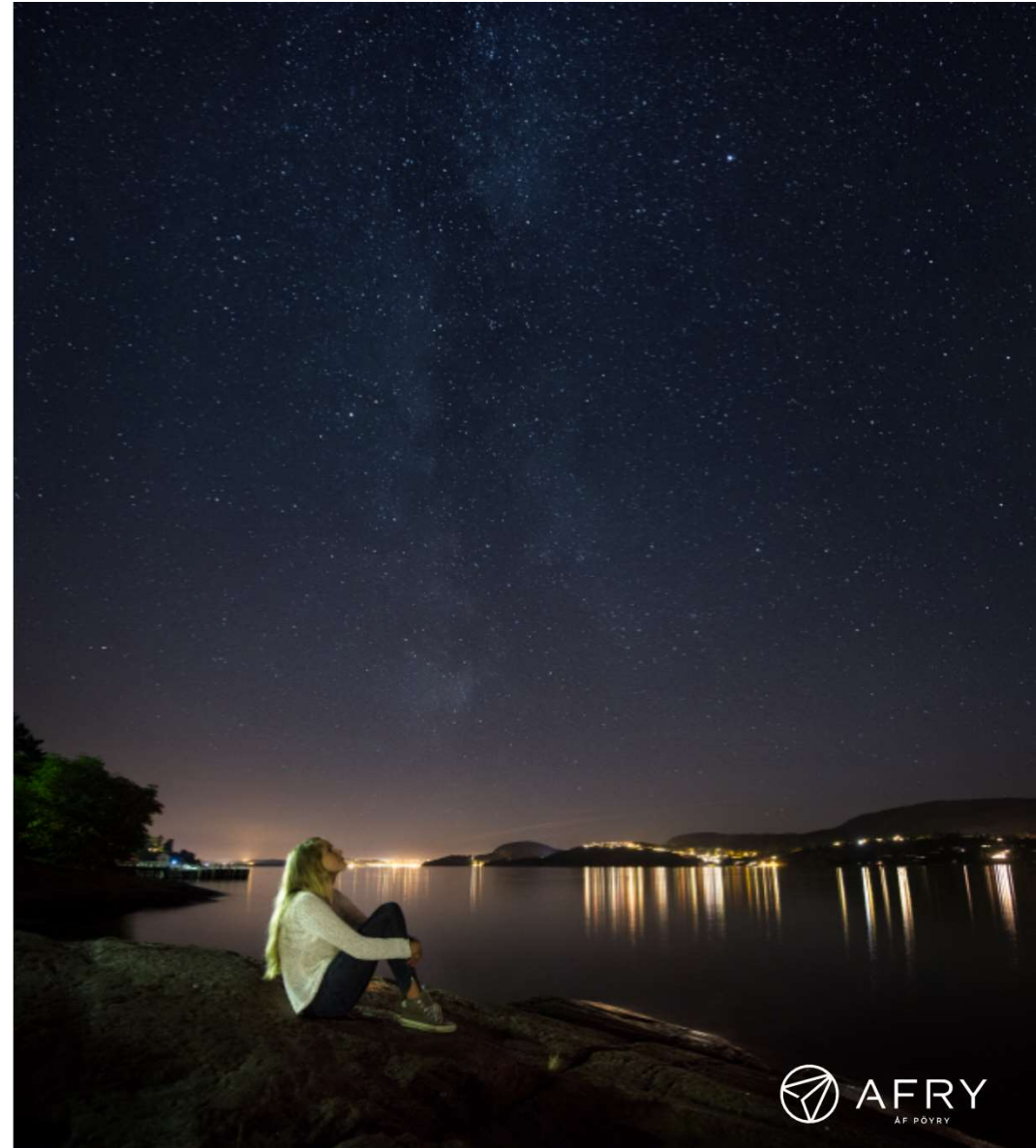
Part time  
jobs

Theses and  
master's theses

and AFRY Future Stars programme

# AFRY Future Stars programme

- Duration: 1 year (May-April)
- Summer work and part-time job during semesters
- 4 Training Days
- Own mentor, guiding in everyday work and career planning
- AFRY Future Stars community
- Next application round: November 2023



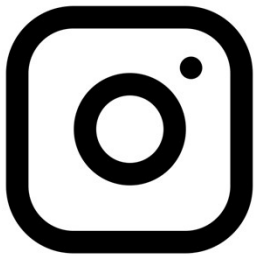


# Apply to AFRY

- In case you cannot find a suitable job from our open positions, it is possible that we could still offer something interesting to you
- Send us an open application and tell us about your background, skills, preferred duration & timing of the job, and how much you can work per week
- We constantly follow the incoming open applications and will contact you in case we have something to offer
- Send us an open application at [afry.fi](https://afry.fi)



Follow us on social media to keep updated



@afry.official  
@afry.suomi



AFRY



@AFRY\_global  
@AFRYSuomi



AFRY Suomi



# Making Future



Aalto University  
School of Chemical  
Engineering

# CHEM-E0115 Planning and Execution of a biorefinery Investment Project (5 cr)

*Lecture 1*  
*September 7, 2023*  
*Aurora Arkima*

# Lecture 1 contents

## 1. Introductions

## 2. Course overview

- *Learning outcome objectives*
- *Program/lectures*
- *Advice*
- *Evaluation*
- *Course Material*

## 3. Project management fundamentals

- *Forest BioFacts*

## 4. Course Assignment

- *RFQ material overview*

# Course objectives

- After the course, the students are familiar with systematic **planning**, **implementation** and **management** of a biomass-based process industry **investment project**.
- The students will acquire experience in **engineer's work** in a consultancy company, as well as working with real-life **tools** for **project planning**.
- Moreover, the students have experience in project work in **teams**, as well as on report **writing** and giving oral **presentations**.

# Course program

## Lectures on Thursdays 08:15-12:15 in Puu1, L2

- 7.9. Introduction to Course
- 14.9. Investment Planning and Decision making phase
- 21.9. Project Controls
- 28.9. Introduction to Process engineering, HSE and sustainability
- 5.10. Plant engineering
- 12.10. Workshop
- 26.10. Site Work and Procurement
- 2.11. Workshop
- 9.11. Workshop
- 16.11. Final presentations and Exam

# Course program

Workshops will be held at AFRY offices:

- 12.10. in AFRY Otaniemi (Otakaari 27, Espoo)
- 2.11. in AFRY Otaniemi (Otakaari 27, Espoo)
- 16.11. in AFRY Vantaa (Jaakonkatu 3, Vantaa)



# Course completion

## To complete the course

- Assignment (presentation 16.11.2023)
- Exam (16.11.2020 or 04.12.2023)
- Peer and self assesment (with presentation 16.11.2023)

**5 cr = 5 x 27 h = 135 h**

- Lectures + examination: 50 h
- Assignment (Project work): 85 h

# Course evaluation

## Course Evaluation criteria (Mandatory to participate in each three)

- Examination 50 % (25 points)
- Assignment 30% (15 points)
- Assignment Self and Peer assessment 20% (10 points)

Based on the final peer and self-assessment, coefficient will be used to calculate individual share for each student based on the overall score of the team's achievement.

For example:

You get 22/25 points in exam.

Your team gets 20/25 for the assignment  $(3/5)*20=12$

You get co-efficient 1.1 from the peer- assessment.  $((2/5) * 1.1*20)=8.8$ .

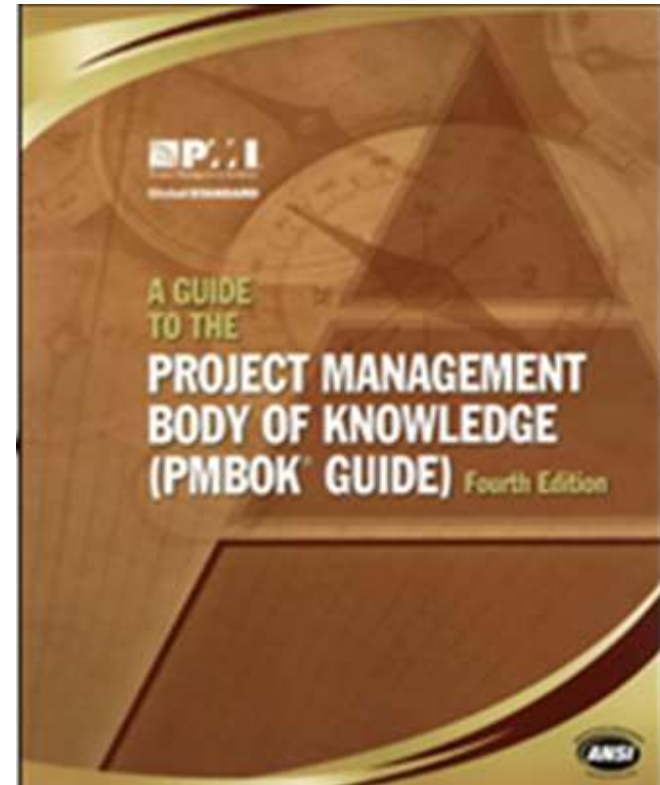
Your total points are 42.8 => Your grade is 4

Grades basis (subject to adjustment based on overall scoring)

15.5-19.5 = 1, 9.5-28 = 2, 28-35= 3, 35-43 = 4, 43- = 5

# Course Material

- Project Management Institute: A guide to the Project Management Body of Knowledge (PMBOK®Guide)
- Lecture slides (Materials in My Courses)
- Supporting material available at:



# Course Advice

- Discussion ahead of lecturing – EVERYONE PARTICIPATES! → Talking is important!
- Join the lectures
- Lectures at AFRY require registration in advance, please also respect the time required for checking in at the reception
- Practical exercise is the key effort of the course for you
- Attitude matters 😊
- Lecture material available afterwards in "MyCourses"

# Questions?

# ForestBiofacts

You should be able to use it  
with Aalto credentials

⇒ **Section: Business and  
investment planning**

Digital learning environment



[info@puunjalostusinsinorit.fi](mailto:info@puunjalostusinsinorit.fi)  
+358 40 132 6688



**ForestBioFacts**  
Paperi ja Puu Oy



**PUUNJALOSTUS-  
INSINÖÖRIT**  
Forest Products Engineers

© 2020 ForestBioFacts

# Business and Investment Planning

The screenshot shows a web page with a light green and white color scheme. At the top left is the 'forest bio facts' logo. The main header area contains the title 'Business and investment planning' and a search bar with the text 'Search...'. On the right side of the header, there is a link for 'My account - Logout'. A left sidebar contains a navigation menu with the following items: 'Business and investment planning', 'Investment project fundamentals >', 'Business and investment planning in the forest industry >', 'Conceptual phase >', 'Pre-feasibility phase >', 'Feasibility phase >', and 'Organisational learning in investment projects >'. Below the sidebar is a 'Collapse sidebar <' button. The main content area features the text 'Editors: Dr. Tom Lind and Dr. Antti Lindqvist' above the title 'Business and investment planning'. Below the title is a video player showing a forest scene with a play button overlay. A right sidebar contains a right arrow button.

# How to access:

**Register as Aalto team user here:**

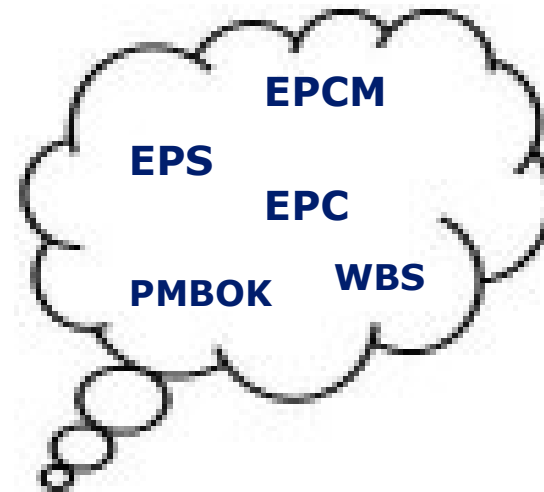
<https://forestbiofacts.com/my-account/join-team/bb3627d8fd3c6150fad3dfb6e9d29f35>



# PROJECT MANAGEMENT FUNDAMENTALS

Objective:

- After this lecture all team members know the project management basics and recognize terms used in project execution phase



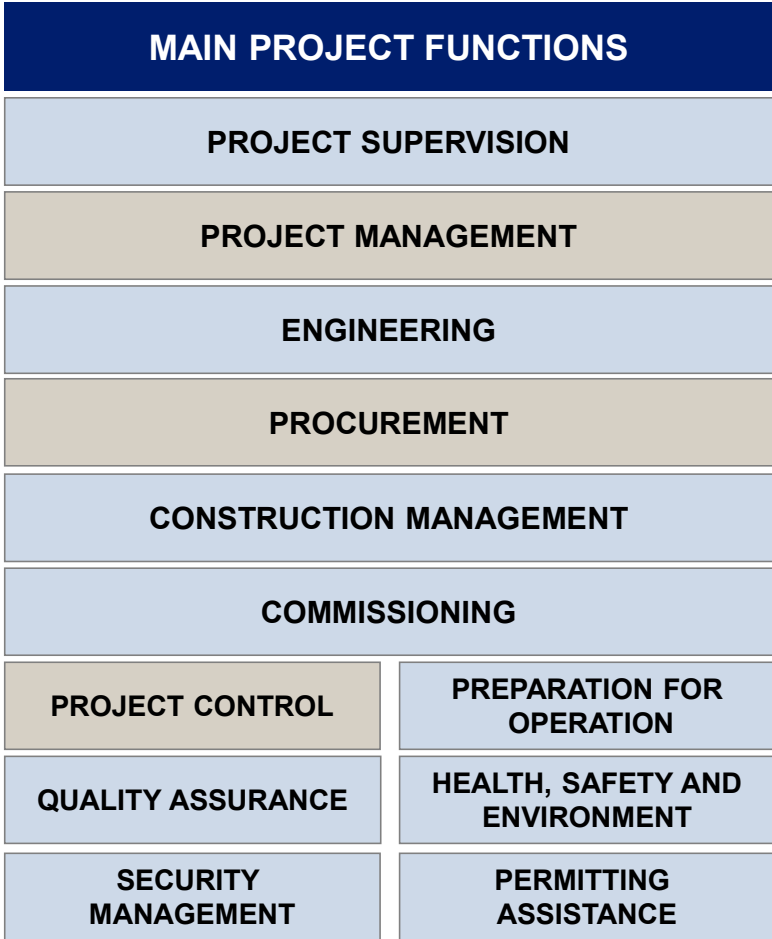
# PROJECT MANAGEMENT FUNDAMENTALS

– What is a project?

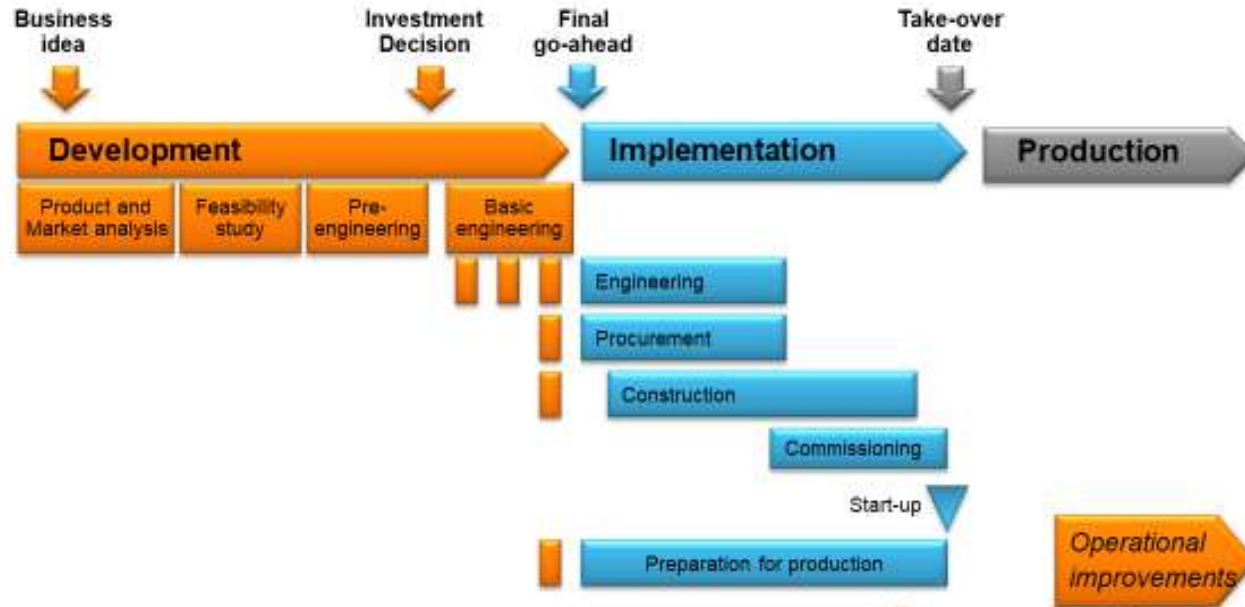


# PROJECT MANAGEMENT FUNDAMENTALS

— MAIN PROJECT FUNCTIONS



# PROJECT LIFECYCLE



# PROJECT IMPLEMENTATION METHODS

## Terms

- EPCM = Engineering -Procurement -Construction Management
- EPS = Engineering/Equipment -Procurement -Supply/Services
- EPC = Engineering -Procurement -Construction
- OB = Open Book
- ESS = Extended Scope of Supply
- BOO = Build-Own-Operate
- BOOT = Build-Own-Operate-Transfer
- BOT = Build-Own-Transfer
- DB = Design-Build
- DBO = Design-Build-Operate
- DBFO = Design-Build-Finance-Operate
- FBO = Finance-Build-Operate
- FBOM = Finance-Build-Operate-Maintain

# PROJECT MANAGEMENT GUIDELINES

## Focus on Project Controls

SCOPE

COST

TIME

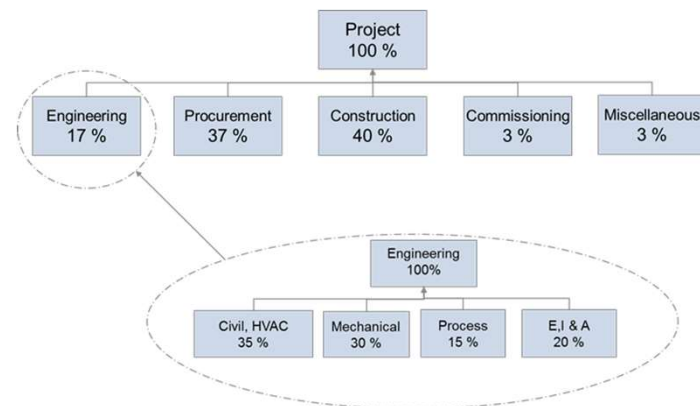
QUALITY

- Contract Management
- Integration and Control Management
- **Scope Management**
- **Time Management**
- **Financial Performance Management**
- Quality Management
- Project Human Resources Management
- Project Communication and Reporting Management
- Project Risk and Opportunity Management
- Project Closure Management
- Engineering Management
- **Procurement Management**
- Construction Management
- Commissioning Management
- Test and Acceptance Management
- HSEQ & Security Management
- Training Management
- Warranty Management
- IT Management

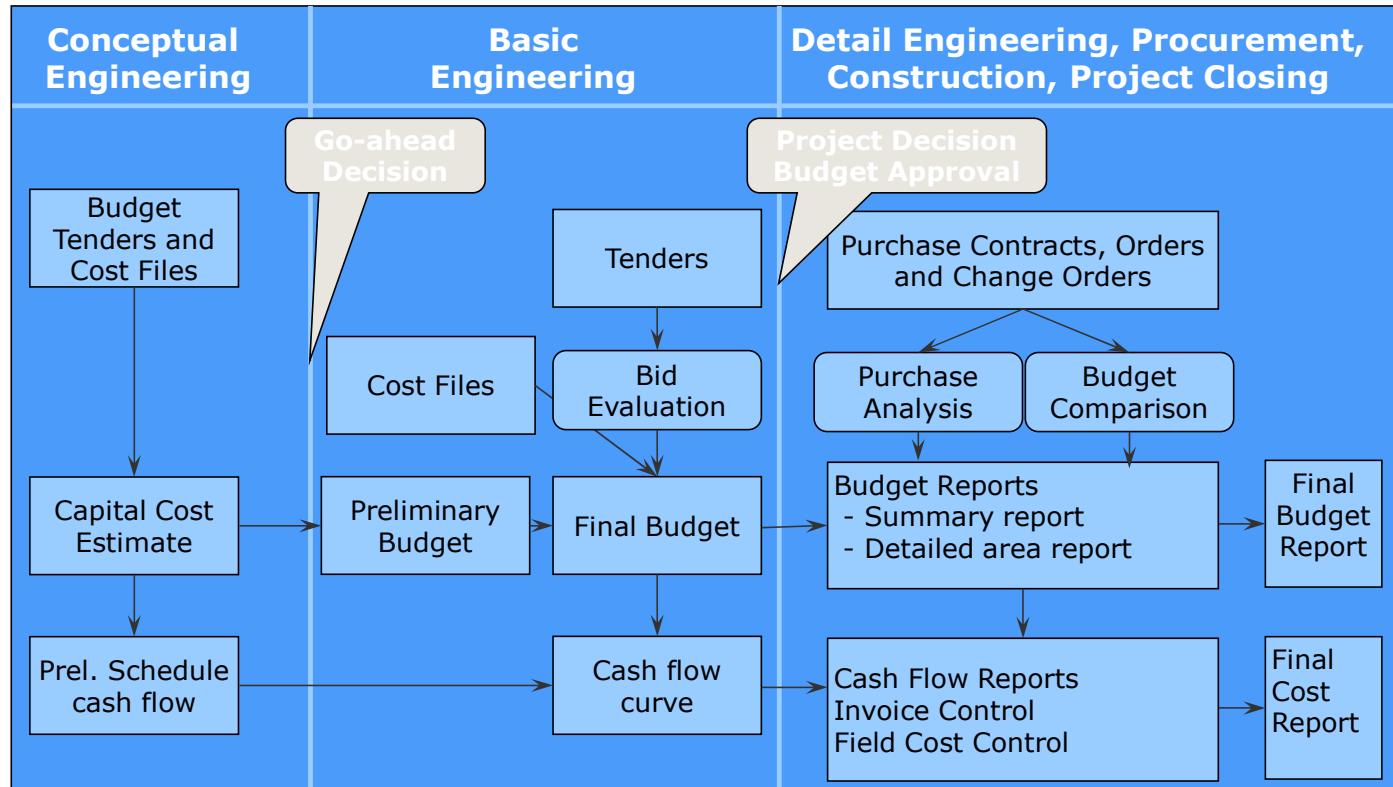
# Scope management

- Collect requirements
- Define what the project should deliver
- Define Scope
- Create Work Breakdown Structure (WBS)
  - “Create WBS is the process of subdividing project deliverables and project work into smaller, more manageable components.” – PMI
- Define activities
  - “Define Activities is the process of identifying the specific actions to be performed to produce the project deliverables.” – PMI
- Define responsables
- Control Scope
- Verify Scope

## Example of WBS

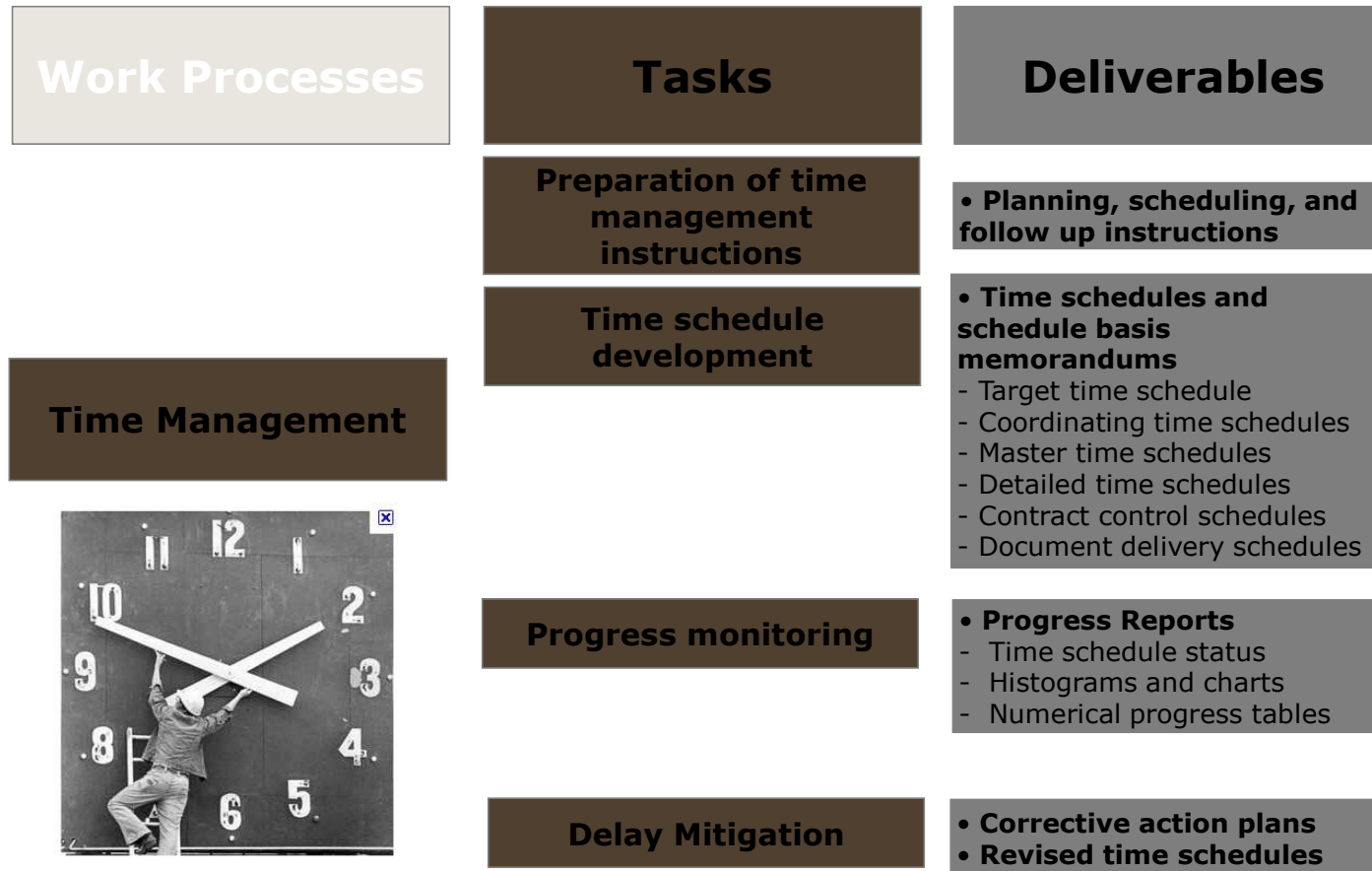


# Cost Management- Process Flow

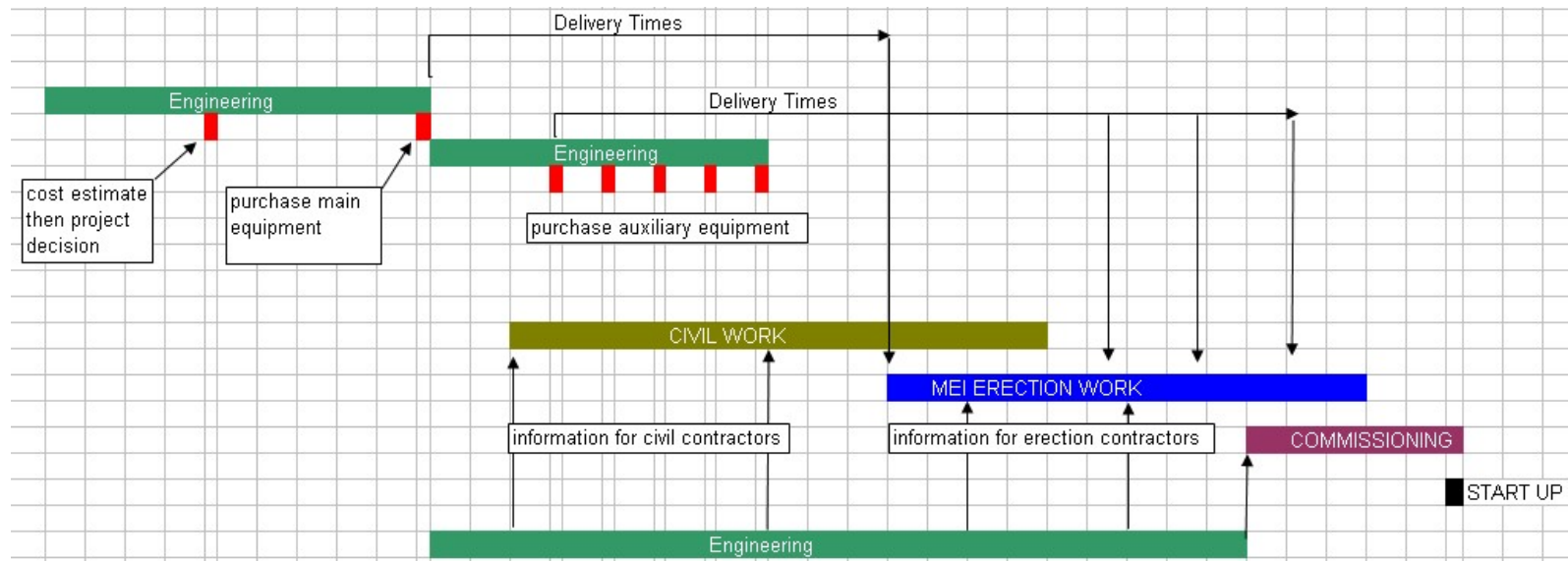




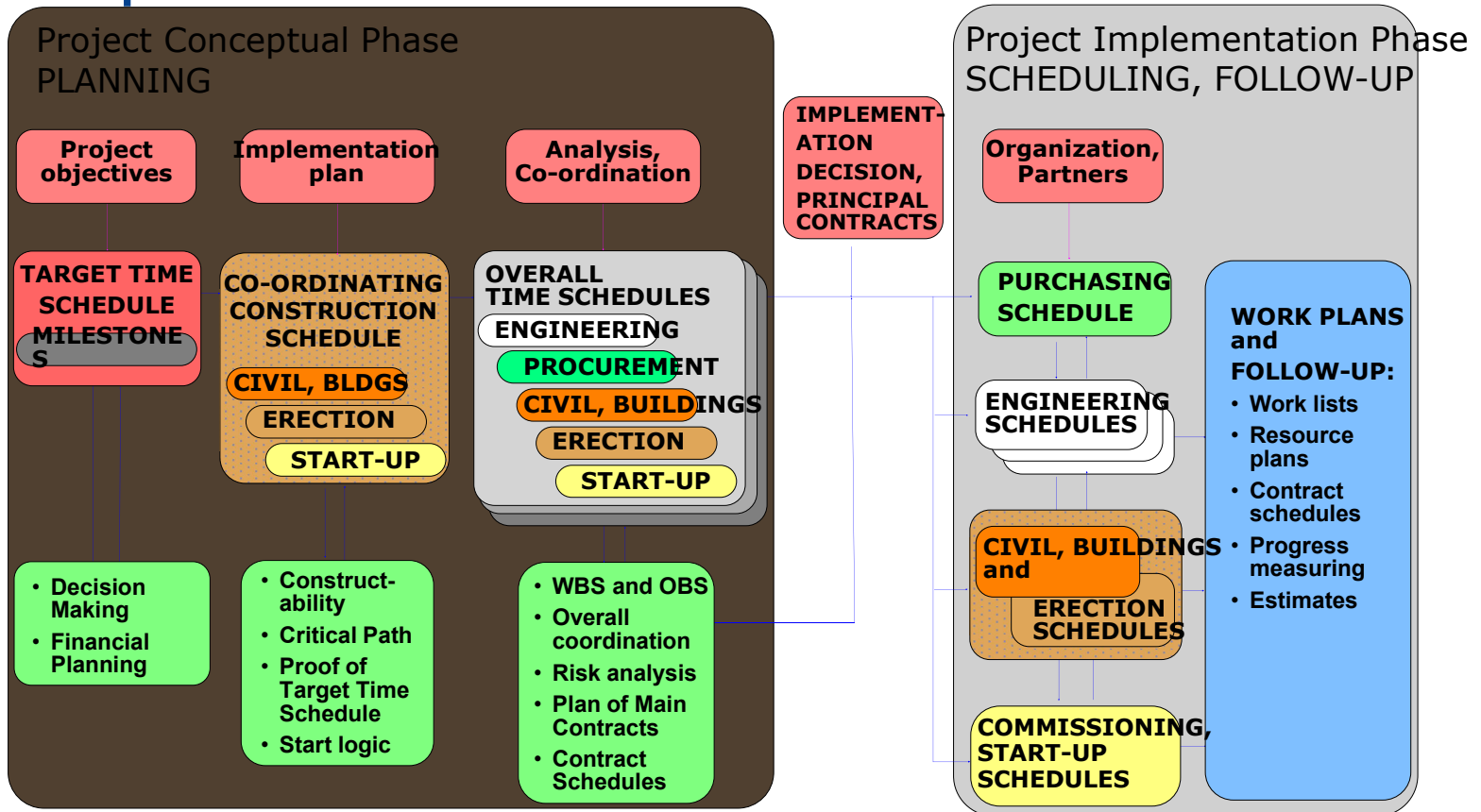
# Project Control – Time Management



# Time Management - Simplified Project Logic



# Time Management- Time schedule development



# Procurement Management Procurement Is Not Only Purchasing...

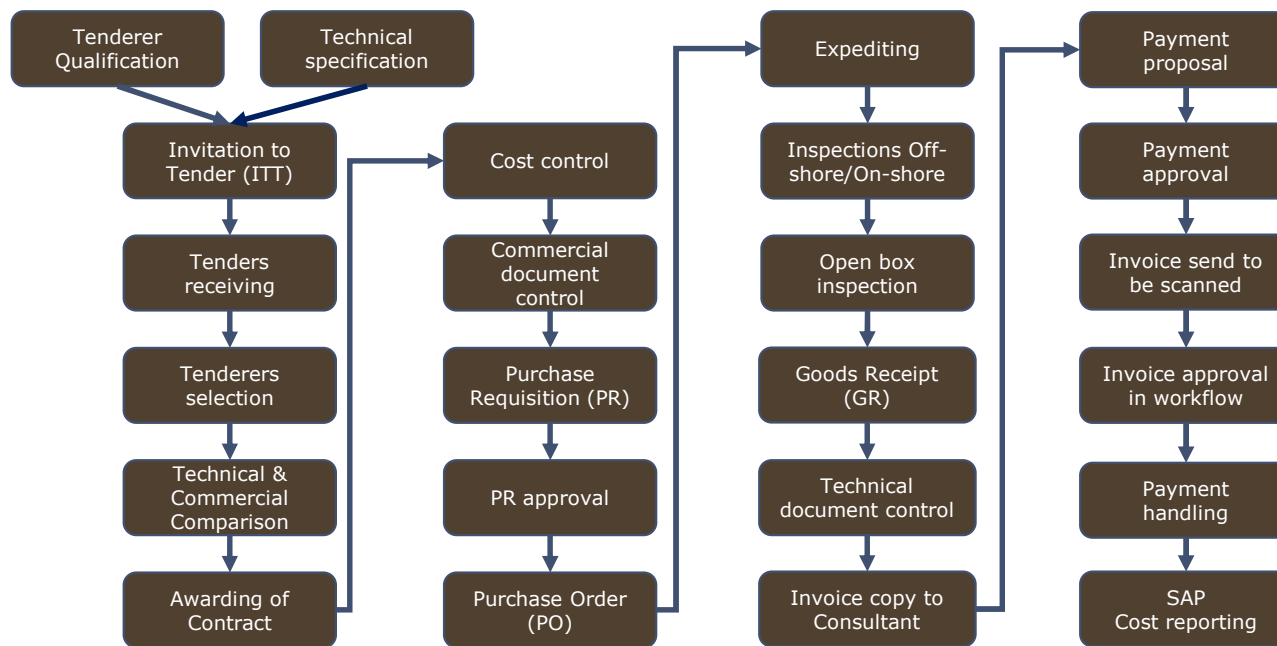


...it is a wide range of activities to ensure that materials and services are available at site in the **right time**

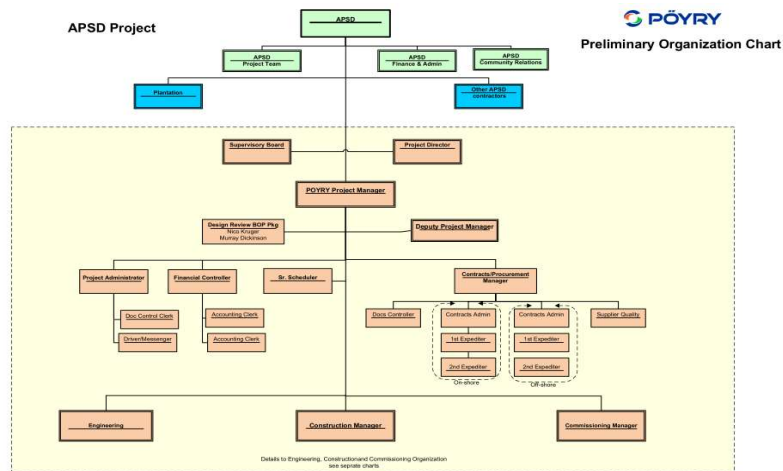
- **Purchasing Planning and Control**
  - identifying and controlling what is to be purchased and when
- **Requirements Documentation**
  - compiling commercial conditions and technical requirements
- **Supplier Evaluation**
  - evaluating and determining which suppliers and contractors should be invited to supply products and services => Request for Information (RFI)
- **Awarding of Contracts**
  - issuing Request for Tender (RFT) documents, technical & commercial tender evaluations , technical & commercial purchase negotiations, preparation and awarding of the contracts, purchase orders, variation orders
- **Contract Control => Expediting & Inspection**
  - ensuring that suppliers' and contractors' performance meets contractual requirements
- **Contract Closure**
  - Hand-over & Final Settlement
  - Feedback to capital cost estimating and engineering

# Procurement MANAGEMENT

## Procurement process



# Typical project organisation histograms



# histograms

