GE105
Introduction to Engineering Design
College of Engineering
King Saud University

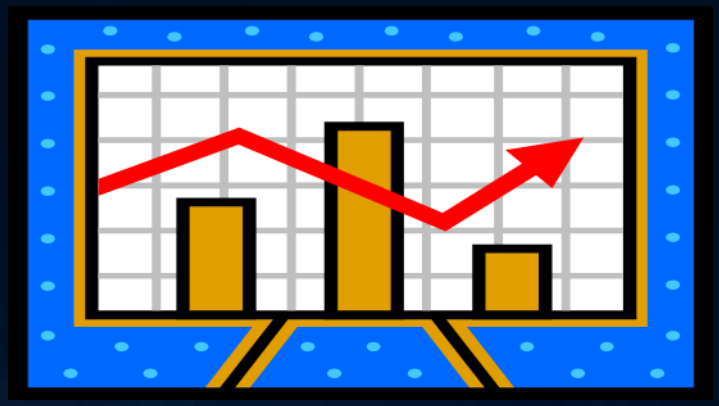
Studio 10.

1. ***How to prepare Posters***
2. ***Concept Generation and Evaluation***

SPRING 2016

Guide for Poster Design

- Size Ao (Portrait/Vertical)
- Can use Microsoft PowerPoint to design it
- Apply The 20-40-40 Rule
  - 20% Text
  - 40% Graphics
  - 40% White Space
- Use Heavy lines for ease in viewing
- Should be easy to read from more than one meter away



Font Types, Use and Size

Font Use	Font Size
Title	96 pt
Authors	72 pt
Affiliations	36-48 pt
Section Header	32 pt
Text	24 pt
Acknowledgments	18 pt

Suggested Font Type:

Tahoma **Helvetica** **Palatino** **Arial** **Times New Roman**

Poster Mandatory Contents

Your poster should include:

- A descriptive title
- Overview of the design project
- What? How? Why?
- Primary and secondary objectives
- Constraints and criteria
- Human factors
- Creative component
- Generated concepts
- Concept evaluation
- Conclusions
- Acknowledgements

Some Advices:

- Photographs as backgrounds lose quality when enlarged (use 150-300 dpi resolution)
- Dark backgrounds are easier on the eye but use more ink
- Colored backgrounds can often break the monotony of white posters, thus attracting a viewer
- Use light backgrounds with dark photos and vice versa
- Neutral/gray backgrounds enhance color photos while white backgrounds reduce their impact.

Be creative…


Marine Mammal Observer Association
"Setting the Standard for Marine Mammal Observation Worldwide"
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Who We Work With
MMOA aims to works with industry, government agencies, non-government organisations and academics to improve the profession's effectiveness.
MMOA Aims
•Developing professional competency
•Improving collection and use of data
•Assimilating field experience and knowledge of MMOs
•Providing a collective voice for MMOs
•Providing constructive feedback on the implementation of mitigation guidelines to regional regulatory bodies
•Promoting the MMO profession in the offshore industry
•Improving protection for marine mammals
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Open to qualified and experienced MMOs and PAM Operators
Benefits include:
•Recognised as competent professionals
•Access to a MMO Forum to share knowledge and experience
•Access to the Information Directory
•Influence the future development of the profession
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•Full voting rights on the Association
ASSOCIATE
Open to students, prospective MMOs, newly qualified MMOs, company employees and individuals with an interest in MMO issues
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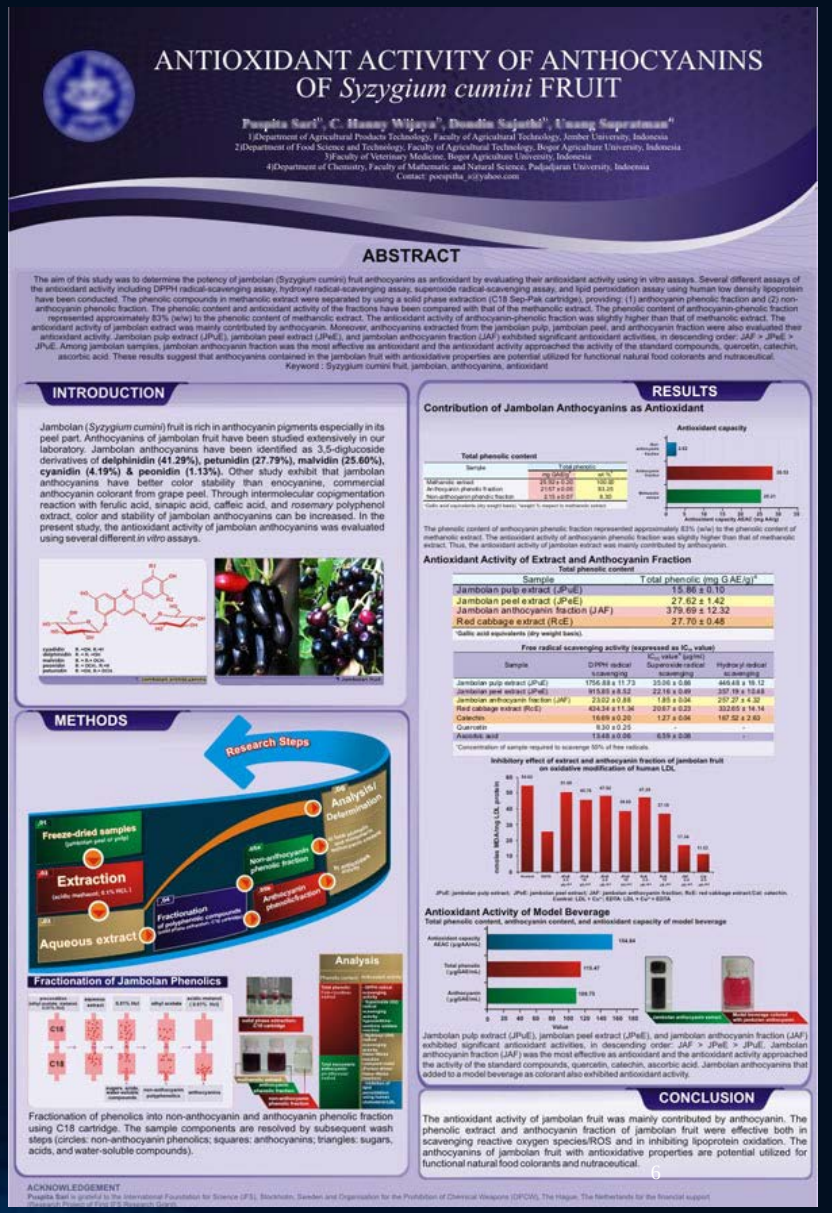
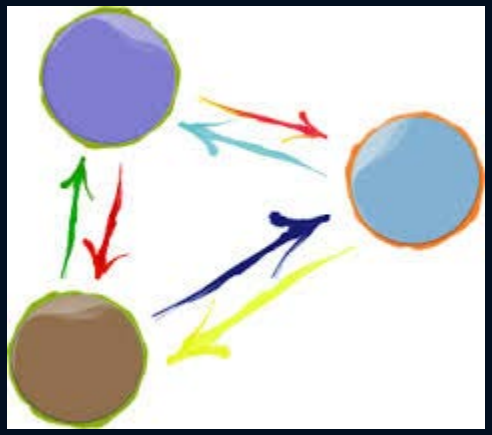

ANTIOXIDANT ACTIVITY OF ANTHOCYANINS OF Syzygium cumini FRUIT
ABSTRACT
INTRODUCTION
METHODS
Research Steps
Freeze-dried samples
Extraction
Aqueous extract
Fractionation
Analysis/ Determination
Fractionation of Jambolan Phenolics
RESULTS
Contribution of Jambolan Anthocyanins as Antioxidant
Total phenolic content
Antioxidant capacity
Antioxidant Activity of Extract and Anthocyanin Fraction
Total phenolic content
Free radical scavenging activity (expressed as IC50 value)
Antioxidant Activity of Model Beverage
CONCLUSION
ACKNOWLEDGEMENT

END of part one

....next

(concept generation and evaluation)

Reminder: Morphological Analysis



- The problem is divided into smaller sub-problems.
- Concepts are generated to satisfy each smaller problem.
- A four-step process
  1. list the functions and features required
  2. Identify as many ways as possible for each feature or function
  3. Draw a table with functions listed vertically and features or concepts listed horizontally
  4. Identify all practical combinations

Reminder: Morphological Analysis (Example)

Design a means of transportation for disabled persons

Feature	Concept 1	Concept 2	Concept 3	Concept 4
Body Support	armchair	under arm	leg support	sofa
Ground Support	rollers	tracks	wheels	skids
Power Supply	Battery	solar	human	air
Speed Control	automatic	manual	on-off	-
Direction Control	side thrust	one side lock	reverse	Steering

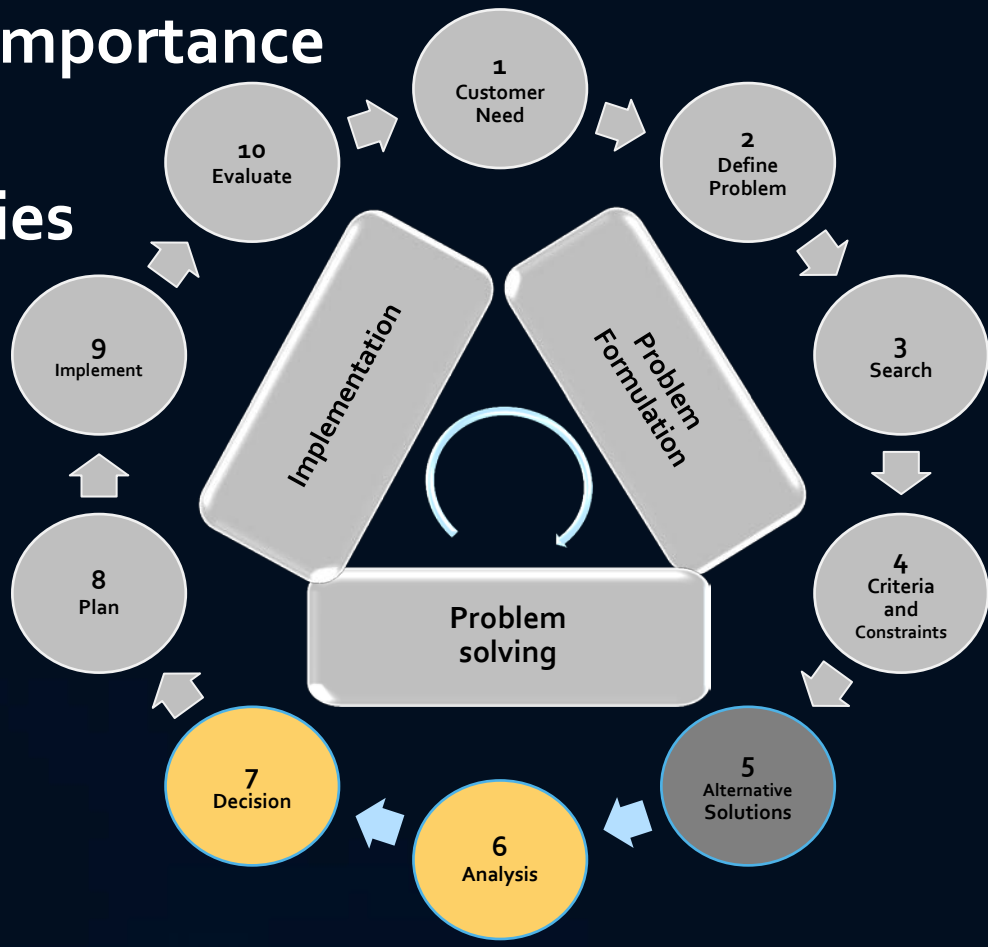
Design 1: Armchair + Rollers + Solar + Automatic + Side-thrust

Design2: Armchair + Wheels + Human + Manual + Steering

Reminder: Concept Evaluation

- Characteristics of Engineering Decisions
  - Multiple criteria
  - Criteria are of different importance
  - Criteria are conflicting
  - Multiple interested parties

- Use a Decision Matrix:
  A simple decision approach to weigh pros and cons applying weight and rate concept (multiply and sum)



Weights

- To determine the importance of each attribute, we use a simple approach based on weights that sum to 100

	Direct Energy	Manufacturability	Flexibility	Holding Energy in Oven	Total Weight
Scenario 1: Compromise	25	25	25	25	100%
Scenario 2: Most light in	40	5	15	40	100%
Scenario 3: Easy to make	20	40	20	20	100%

Rating the Concepts

- This scenario uses weights (40,5,15,40)

	Direct Energy	Manufacturability	Flexibility	Holding Energy in Oven	Score
Weights→	40	5	15	40	
Concept 1: No reflector Big window	1	10	5	3	285
	40	50	75	120	
Concept 2: 1 reflector Small window	4	8	7	6	545
	160	40	105	240	
Concept 3: Parabolic	9	2	4	4	590 ★
	360	10	60	160	

Group Activity

- **Part 1: 40minutes**
- Each group generates concepts for their final design project using morphological analysis
- At least three alternatives must be generated

- **Part 2: 20minutes**
- Use the weight-and-rate to evaluate your concepts

- **Part 3: 15minutes**
- Present your work to the Instructor and your peers in class