

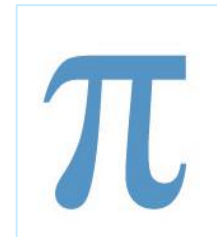
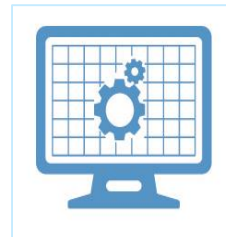
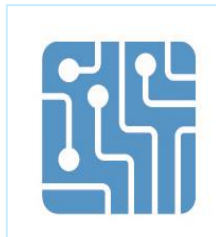
Integrative STEM

for secondary schools

Integrative STEM Education by Festo

Integrative STEM Education – Making the connections in secondary education

The Festo Didactic STEM program seeks to motivate and inspire the next generation of problem-solvers. Our goal is to provide students the opportunity and inspiration to optimize solutions for real-world problems where they learn concepts related to STEM disciplines in a hands-on, “learn-by-doing” environment.



Curriculum Vitae

Personal Information

Name : Mr. Chamnan Heepporn

Position : Head of Didactic TH, TH-DD

Company : FESTO Ltd.

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Education

1. Barton Institute of TAFE (Australia) : Advance Certificate in Engineering
2. Barton Institute of TAFE (Australia) : English for Engineers
3. King Mongkut's Institute of Technology North Bangkok :
Education (Mechanical Engineering)

Experience

1. Didactic Manager at Festo Ltd. : starting since 1996 up until now
2. Mechatronics Expert Representative for Thailand since 1997
3. System project design and project development
4. Expert in Hydraulics injection machine and high pressure pressing machine
5. Expert in Mitsubishi Robotics
6. Expert in SCADA and PLC programming

Agenda of Mr.Chamnan

0-15 min. : **Overview** The **Festo Didactic STEM** solution

- VDO “STEM for Secondary Education”
- Presentation Integrative STEM for secondary schools

15-20 min.: **What does Bionics mean?**

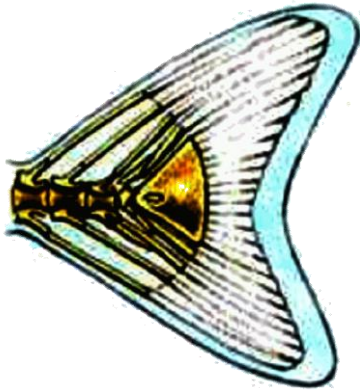
20-45 min.: **Project-Based Approach**

Learning Path

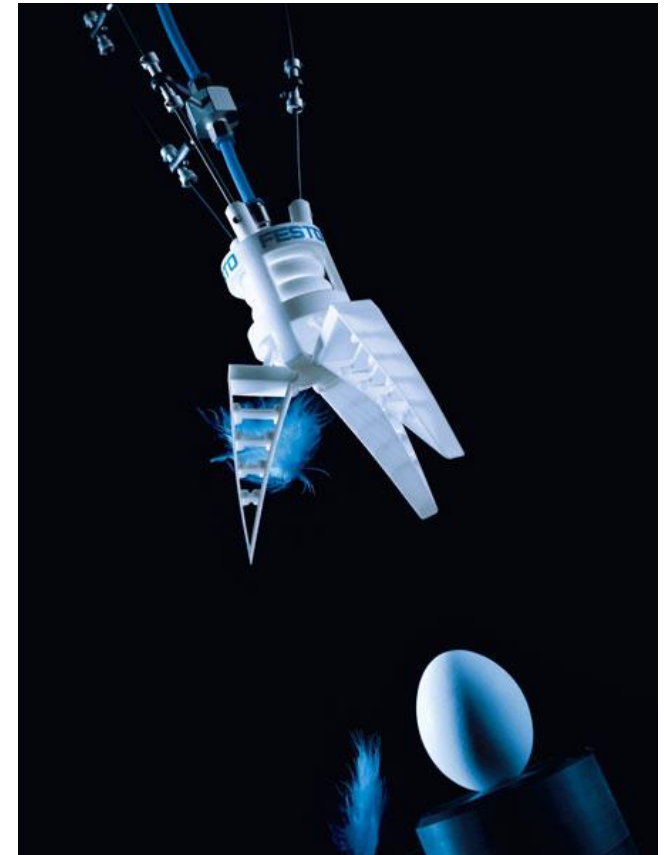
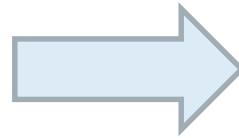
- STEM Connections Video
- Course Introduction
- Engineering Design Video
- Project Challenge
- Project 1 – Exercise 4 : Fin Ray Effect
- Engineering Design Worksheet:Complete the Challenge

45-50 min : **VDO “Integrative STEM Education by Festo”**

Sample: Finray® Gripper



Fin from a fish

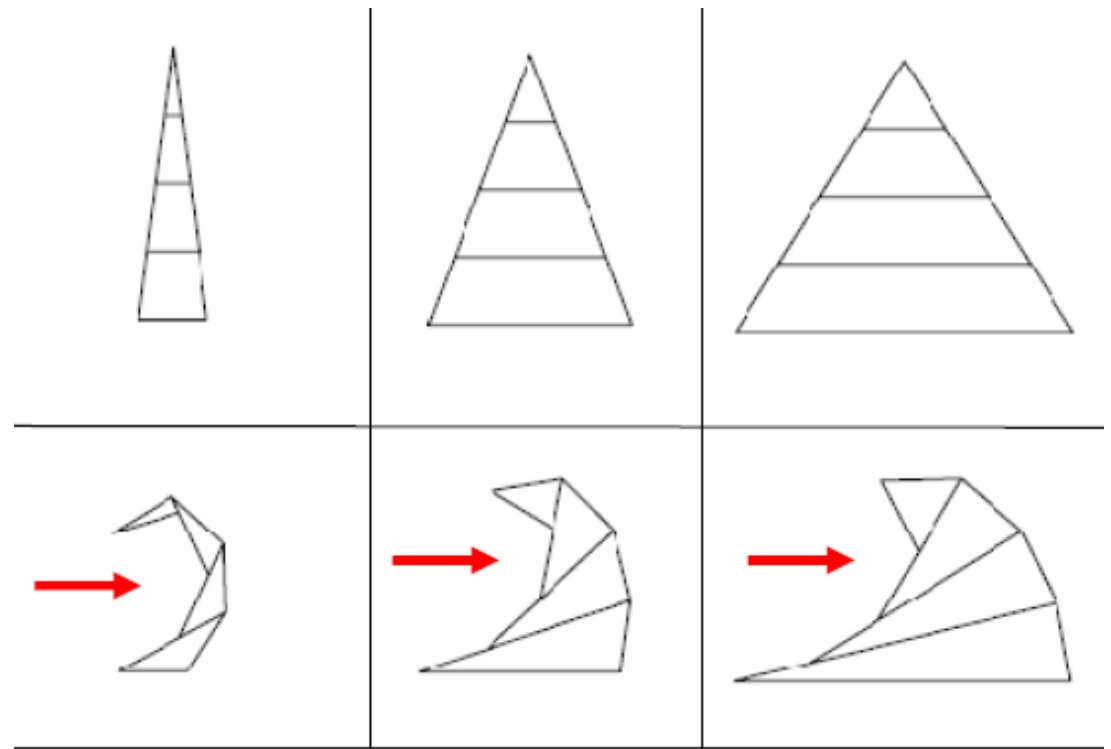


Finray-Gripper
(Festo)

- Found by Leif Kniese
- Applications: grippers
- Benefits:
 - Good weight ratio of gripper to workpiece
 - Extremely versatile

Experiment 4: Finray-Effect®

- Engineering sample: Gripper
- Experiment: designing gripping jaws based on finray-effect



Festo Fin Gripper

Festo Fin Gripper

- 1 If this is not on cardstock, glue the whole pattern on construction paper.
- 2 Cut out the four individual pieces.
- 3 Fold the ribs and the fin along the dotted lines.
- 4 Apply glue to the gray areas of the fin.
- 5 Glue each matching rib in place. For example, "Rib 1" on both "Glue Rib 1" spots.
- 6 Join the bottom of the fin together as shown in the picture, right.
- 7 Put your thumb on the bottom to pinch the corner (below Rib 3.)
- 8 Give it a squeeze!

Thank you.