Image Sensor and Camera Technology
5-11-12-13 December 2017 in Yokohama

An Image Sensor and Camera Technology course is schedule in December 2017 in Yokohama, Japan.

The first day, before the ITE show, is dedicated to the big picture for less technical attendees like sales, marketing, support personnel and non-technical managers or for beginners.

The next three days, after the ITE show, are advanced and split over several courses, it is possible to subscribe for a single course, multiple courses or the full session. These detailed courses are mid-level to advanced, with some introductory topics, and are designed for engineers who are new to the field of imaging or non-engineering personnel who need a more in-depth understanding of the technology or engineers familiar with some elements of imaging and machine vision but not the whole picture. It is also a good refresher course for experienced engineers. Each course is accompanied by a question and answer session and an open discussion session. Some courses include exercises.

There are PDF notes for each course available on a pen drive.

The course sessions or a customized course session can be organized in company for a special price and an unlimited number of attendees.

Lunch will be organized (additional fee by reservation only).

Venue

The training will be located at 2-17-19, HF Shin-Yokohama Bldg. 4F, Shin-Yokohama, Kouhoku-ku, Yokohama 222-0033 Japan (222-0033 神奈川県横浜市港北区新横浜 2-17-19 HF 新横浜ビルディング 4F) at the AIC Vision office. It is located 8 minutes walking distance from Shin-Yokohama station. The Shin-Yokohama station can be reached from the hotel using the JR Yokohama line or the municipal blue line. The total distance from Minatomirai area (ITE show at Pacifico) to the AIC office is approximately 20 to 30 minutes.

Course schedule

- Tuesday 5th – beginner's level:
  - 9:00AM to 9:15AM: Course introduction, Aphesa and AIC presentation
  - 9:15AM to 12:30PM: Introduction to imaging (light, light sources, lenses, sensors, cameras, industrial cameras, performance measurement and reporting).
  - 1:30PM to 4:00PM: Introduction to image sensors (history, CCD, CMOS)
  - 4:00PM to 5:00PM: CMOS image sensor fabrication
- Monday 11th – intermediate/advanced level:
  - 9:00AM to 9:15AM: Course introduction, Aphesa and AIC presentation
  - 9:15AM to 12:30PM and 1:30PM to 2:30PM: Introduction to imaging (light, light spectrum, light sources, scene, behavior of light, basic radiometry and photometry, lighting techniques, polarization, filters, lasers, optical basics, MTF, CCD and CMOS image sensors, camera basics, color issues, multispectral and hyperspectral imaging, camera interfaces, photography and imaging terms, lens standards, camera interface standards) – course code: IMAG, including a short break.
  - 2:30PM to 5:00PM: Introduction to CMOS image sensors (photodiodes, pinning, SPAD, pixels, QE, 3T, 4T and 5T pixel operation, rolling vs global shutter, arrays, image sensor design, readout circuits, ADC circuits, architectures, spatial and temporal noise sources and noise compensation, color filters, microlenses, FSI vs BSI, pixel design, dark current, lag, defect pixels, ageing, temperature effects, high temperature imaging, extreme speed imaging, shutter efficiency), including a short break – course code: CMOS.
- Tuesday 12th – intermediate/advanced level:
  - 8:30AM to 9:30AM: End of CMOS course.
  - 9:30AM to 10:15AM: Production of CMOS image sensors (design flow, image sensor production process, physics of the wafer processing, image sensor packaging, back-side illumination, wafer scale packaging, butting, stitching, design process, working with a custom image sensor design house) – course code: PROD.
  - 10:15AM to 10:30AM: break
  - 10:30AM to 11:00AM: Introduction to high speed and real time imaging – course code: HSRT.
  - 11:00AM to 12:30PM and 1:30PM to 2PM: Introduction to software based (mutliple exposure) high dynamic range imaging, including algorithms and artifacts and introduction to specific CMOS image sensors for HDR imaging, including control methods, pixel designs and artifacts – course code: HDRI.
  - 2:00PM to 3:00PM: Introduction to 3D imaging – course code: 3DIM.
  - 3:00PM to 3:30PM and 3:45PM to 4:45PM: Introduction to the EMVA1288 standard – course code: EMVA.
  - 4:45PM to 5:00PM: Introduction to infrared imaging – course code: IRIM, course level introductory

    .

- Wednesday 13th – intermediate/advanced level:
  - 8:30AM to 11:45AM: Introduction to image processing, including a short break – course code: PROC, course level mid-level.
  - 11:45PM to 12:15PM: Special considerations related to mobile imaging – course code: MOBI, course level introductory.
  - 12:15AM to 12:30PM: Brief introduction to human vision.
  - 1:30PM to 3:30PM: Test to assess your knowledge level, with correction.
  - 3:30PM to 5:00PM: Private consulting sessions available

The attendees will receive a certificate of attendence and a certificate of test results on request.

Prices

Course code	Price, before November 15th	Price, after November 15th
IMAG	275 euro	295 euro
CMOS	275 euro	295 euro
PROD	60 euro	75 euro
HDRI	170 euro	195 euro
3DIM	75 euro	85 euro
EMVA	100 euro	125 euro
MOBI	45 euro	55 euro
PROC	240 euro	290 euro

Price for the full three days session: 790 euro (ordered before November 15th) or 1075 euro (ordered after November 15th).

Price for the introductory course: 130 euro (ordered before November 15th) or 190 euro (ordered after November 15th); 100 euro if also attending the 3-days session.

Reductions are offered for attendence to multiple courses (-10% on the total price for three course or more) or multiple members of a company attending the same courses (-10% for the second member, -30% for any additional member), or previous attendees (-10%).

Cancellation policy: 50 euro (or 50% of course price if less than 50 euro) if more than four weeks before the courses, 50% if less than four weeks before the courses, 100% less than one week before the course or in case of no show.

Payment terms: 30 days net, invoiced at the time of booking, net 10 after November 15th.

The full course session of three days will not run or will be reorganized over only one or two days if the required minimum number of attendees is not met. The minimum number of

attendees for the 3-days course is 3 and the maximum is limited to 12. The one day introductory course will only run if it has at least 3 attendees. In case of cancellation, attendees will be refunded for the course but there will be no refund of any travel costs.

Registration

Contact info@aphesa.com or one of our authorized distributors if you intend to attend one or more training sessions, mentioning the course code and the number of attendees from the same company. Aphesa will then provide a quotation for the desired training package. Contacting us for a quotation or for more information does not engage yourself to buy a course.

About Aphesa

Founded in 2008, Aphesa provides consulting and development services in the field of imaging. Our company has designed multiple customer specific cameras for use in industrial, medical and oil&gas applications and has provided consulting services for the design of many other image sensors, cameras and systems. Our experience includes GigE-Vision, USB, USB3-Vision, CameraLink cameras and line scan or area scan sensors in color or monochrome. Our experience also includes high temperature designs, multispectral imaging, high dynamic range imaging, high-speed imaging, embedded image processing and many other topics. Aphesa is also specialized in image sensor and camera testing and has developed EMVA1288 compliant test equipments as well as other specific test equipments for laboratory or production use; the EMVA1288 measurements are also offered as a service.

More information about Aphesa: http://www.aphesa.com
Courses website: http://imaging.courses
Contact us: info@aphesa.com

APHESA SPRL
Rue de Lorcé, 39
B-4920 HARZÉ
BELGIUM

Visit our website for distributor's contact information.