



SPLIT SUMMER SCHOOL STSS2018

**COURSE: OPTOELECTRONICS BASED MEASUREMENTS - INTERFEROMETRY**

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Web page: <https://www.oss.unist.hr/summer-school>  
<http://www.unist.hr/international-split-summer-school-2018/courses>

Main topics:

- Introduction to light as electromagnetic wave
- Basics of optical and optoelectronic components-tools
- Introduction to interferometry, metrological aspect of interferometry
- Practical lab exercises: Light phenomena, constructive and destructive interference, use of lasers in interferometric length measurement, training with commercial equipment

Programme structure:

- 5-day course
- Every student gets lecture notes and exercise handouts bound into a booklet as well as a CD containing a digital version of the booklets

**Important dates:**

Course dates: 03/09/2018 – 07/09/2018  
Deadline for application: 01/07/2018  
Payment due by: 10/07/2018  
Confirmation of the course: 20/07/2018

Price of the course: 300 € (tax included)

**Bed & breakfast:** 6 nights - 1.422,00 HRK (approximately 190 EUR) (tax included) – contact person:  
Marina Kero, email: [marina.kero@scst.hr](mailto:marina.kero@scst.hr)

Programme plan:

Day 1  
-Mathematical basis of light phenomena/interactions (L, 2h)  
- Polarization of light, index of refraction. (L, 2h)  
- Lab demonstration of the light phenomena (E, 2h)  
Day 2  
-Basics of Lasers, safety standards. (L, 2h),  
-4 Types of interferometric measurement/equipment (L, 2h),  
-Required optical, and electronic components (E, 1h)  
-Typical setups, hands-on (E, 1h)  
Day 3  
-Properties measured using interferometer (L, 2h)  
- Length, simple and differential displacement, speed and, flatness of surface measurement. (L, 2h),  
Excursion, visit to a company (F, 3h)  
Day 4  
-Algorithms and technology (FPGA) used for evaluation of interferometric signals (L, 2h)  
-Interferometry comparison with other measurement tools, possible sources of error (L, 2h)  
-Use in mechanical engineering for checking of geometry of machine tools. (E, 1h),  
-Statistics, uncertainty of measurement (E, 1h)  
Day 5  
-Exam (2h)

Programme lecturer:

Predrag Đukić, PhD  
College professor at the University of Split, University Department of Professional Studies, Department of Mechanical Engineering, Split, Croatia