Optics & Photonics are key technologies of the 21st century. They form, e.g., the basis for today’s optical communications, environmental sensing, biomedical diagnostics in life sciences, energy efficient lighting and solar energy harvesting.

The KSOP provides a multidisciplinary environment for first-class research and education as well as for the generation of knowledge and innovation in Optics & Photonics. Comprising both M.Sc. and Ph.D. programs, the KSOP educational concept is designed to qualify our graduates for accelerated careers at world leading academic institutions and in high-technology industries.

The 2-year Master Program qualifies for a further career in industry as well as in research. Completely taught in English, the program is developed for applicants who have accomplished a Bachelor degree in Natural or Engineering Sciences. The program is also considered to be the main entrance channel for national and international students to the KSOP Ph.D. Program.

The program is subdivided into four stages:

- **Stage 1: Introduction**
  - 30 ECTS
  - Sem. 1

- **Stage 2: Core Subjects**
  - 25 ECTS
  - Sem. 2
  - Industry internship: 6 weeks

- **Stage 3: Specialization**
  - 29 ECTS
  - Sem. 3

- **Master Thesis (6 months)**
  - 30 ECTS
  - Sem. 4

The program is subdivided into four stages:

- The first semester (introduction) is designed to accommodate the different backgrounds of the students and to provide profound background knowledge in Optics & Photonics. In the second semester the students cover a broad range of the most important topics in Optics & Photonics (core subjects) spanning the whole range from fundamental science to technology. In the third semester the students acquire in-depth knowledge in one of the interdisciplinary KSOP Research Areas (specialization) and finally contribute to cutting-edge research during their master thesis. These four stages are complemented by the industrial internship, which is an essential and integral part of the master course and tailor-made orientation phase, summer schools, company contact fairs, seminars, and many more.

The educational concept of KSOP is supported by an outstanding scholarship program of the German Federal Government, the state of Baden-Württemberg and 16 leading Optics & Photonics companies. Attractive scholarships for German as well as international students are available.

Research Focus & Specialization

Optics & Photonics are key technologies of the 21st century. They form, e.g., the basis for today’s optical communications, environmental sensing, biomedical diagnostics in life sciences, energy efficient lighting and solar energy harvesting.

The research and educational concept of KSOP has been established to optimally reflect the spirit of multidisciplinary research among scientists and engineers. KSOP research activities cover a wide range of topics in Optics & Photonics and excel in particular in the five Research Areas:

- Photonic Materials & Devices
- Advanced Spectroscopy
- Biomedical Photonics
- Optical Systems
- Solar Energy

The KSOP master program brings the M.Sc. students into direct contact with the KSOP research groups.

interdisciplinary research areas

scholarship program

MSc Program in Optics & Photonics (Master of Science)

PhD Program in Optics & Photonics (Dr. rer. nat. or Dr.-Ing.)
Key Data and Benefits

- 2-years M.Sc. course in Optics & Photonics
- Completely taught in English
- 5 different specializations
- Outstanding scholarship program
- Industry internship program
- Start: every winter semester
- Application deadline: 15th of July each year

Target group

Undergraduates from the fields of Optics & Photonics, Physics, Chemistry, Electrical Engineering, Mechanical Engineering, Mathematics, Computer Science, Biology or Medical Sciences

Student Voice KSOP Master Program

Gustavo Medeiros (Brazil), in an interview with KIT ClicKIT:
Having studied physics in Brazil Gustavo Medeiros values the internationality of the KSOP Master Program.

“The qualification in this study program is excellent. The workload is high, also during semester breaks, since exams and internships are scheduled then. E.g., my 2-month internship I completed with the Fraunhofer Institute und did research on new materials for solar cells.”

Contact & Application

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