1 Export

1.1 Module: Riemann Surfaces [M-MATH-106466]

**Responsible:** Prof. Dr. Frank Herrlich

**Organisation:** KIT Department of Mathematics

<table>
<thead>
<tr>
<th>Credits</th>
<th>Grading scale</th>
<th>Recurrence</th>
<th>Duration</th>
<th>Language</th>
<th>Level</th>
<th>Version</th>
</tr>
</thead>
<tbody>
<tr>
<td>8</td>
<td>Grade to a tenth</td>
<td>Irregular</td>
<td>1 term</td>
<td>German</td>
<td></td>
<td>1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Mandatory</th>
</tr>
</thead>
<tbody>
<tr>
<td>T-MATH-113081</td>
</tr>
</tbody>
</table>

**Competence Certificate**

Oral examination of ca. 30 minutes.

**Competence Goal**

Students know

- essential structural properties of Riemann surfaces,
- topological, analytic and algebraic methods for the investigation of Riemann surfaces, and are able to apply them.

**Module grade calculation**

The grade of the module is the grade of the oral exam.

**Prerequisites**

None

**Content**

- Definition of Riemann surfaces
- holomorphic and meromorphic functions on Riemann surfaces
- Compact Riemann surfaces
- The Riemann-Roch theorem
- Uniformization, Fuchsian groups and hyperbolic metric
- Classification of compact Riemann surfaces

**Recommendation**

Some knowledge of complex analysis (e.g. "Analysis 4") is strongly recommended as well as the modules "Elementary Geometry" and "Introduction to Algebra and Number Theory".

**Workload**

Total workload: 240 hours

Attendance: 90 h

- lectures, problem classes and examination

Self studies: 150 h

- follow-up and deepening of the course content,
- work on problem sheets,
- literature study and internet research on the course content,
- preparation for the module examination

1.2 Course: Riemann Surfaces [T-MATH-113081]

**Responsible:** Prof. Dr. Frank Herrlich

**Organisation:** KIT Department of Mathematics

**Part of:** M-MATH-106466 - Riemannsche Flächen
Competence Certificate
Oral examination of ca. 30 minutes.

Prerequisites
none