The objective of this course is to give in depth knowledge of devices that are basic components of integrated photonic integrated systems, including passive devices, active devices and photonic crystals. The fabrication processes, technology steps and designing tools will be described in detail. Emphasis in state of the art materials (Si or IIIV compounds) will be made in the descriptions of photonics devices.
<table>
<thead>
<tr>
<th>Content</th>
<th>Degree competences to which the content contributes:</th>
</tr>
</thead>
<tbody>
<tr>
<td>(ENG) Passive integrated photonic components</td>
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<tr>
<td>(ENG) Waveguides (rib, strip-loaded, slot-) and gratings</td>
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<tr>
<td>(ENG) Bends and Y-junctions</td>
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<tr>
<td>(ENG) Add/ drop micro-rings</td>
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<tr>
<td>(ENG) Tapers, MMIs, MZI</td>
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<tr>
<td>(ENG) Design of passive components using FIMMWAVE®</td>
<td></td>
</tr>
<tr>
<td>(ENG) Active integrated photonic components</td>
<td></td>
</tr>
<tr>
<td>(ENG) Light sources: lasers and LEDs</td>
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<tr>
<td>(ENG) Optical amplifiers: waveguides and SOA</td>
<td></td>
</tr>
</tbody>
</table>
### (ENG) Detectors for visible and infrared ranges

Degree competences to which the content contributes:

### (ENG) Modulators

Degree competences to which the content contributes:

### (ENG) Polarization splitters and rotators

Degree competences to which the content contributes:

### (ENG) Devices with photonic crystals

Degree competences to which the content contributes:

### (ENG) Integrated silicon micro and nanophotonics technology

Degree competences to which the content contributes:

### (ENG) Technological platforms for photonic integrated circuits (PIC)

Degree competences to which the content contributes:

### (ENG) Basic technology steps (deposition, lithography, etching)

Degree competences to which the content contributes:

### (ENG) Silicon on Insulator (SOI) technology

Degree competences to which the content contributes:

### (ENG) InP photonic integrated technology

Degree competences to which the content contributes:
Minimum attendance: 80 % of the lecture time.
Examination: The students prepare a presentation on a subject of the lecture. The presentation consists in a written part and in a 20 minutes presentation.

Regulations for carrying out activities
The usual in University teaching

Bibliography

Basic: