Specialized Master in Nuclear Engineering

Programme mnemonic
MS-NUAP

Studies level
Advanced master

Learning language
english

Schedule
office hours

Studies category / subcategory
Sciences and technics / Engineering sciences

Campus
Other campus

Programme's added value
BNEN combines the knowledge and experience in nuclear education of six major Belgian universities together with the Belgian nuclear research centre and offers a unique and broad Master-after-Master program in nuclear engineering in close interaction with nuclear research and industry.

Teaching methods
Could you please connect and check http://bnen.sckcen.be/

Job opportunities
Could you please connect and check http://bnen.sckcen.be/

Programme objectives
Registering to this master-after-master program gives access to the Belgian Nuclear higher Education Network (BNEN).

The condensed – 60 crédits in one year, including a master thesis – BNEN program allows the students to acquire all necessary scientific and technical background and skills to develop a career in the field of nuclear applications, mainly for electricity production.

Students are offered the opportunity to coherently take a part of their basic nuclear education at different places in Europe while cumulating credit units. Practical laboratory sessions and advanced subjects taught in a modular way are also offered to enrich the program.

Contacts

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Jury President
Pierre-Etienne LABEAU

Jury Secretary
Peter Baeten
Could you please connect and check http://bnen.sckcen.be/

**Unique year | MS-NUAP**

**Compulsory courses**

<table>
<thead>
<tr>
<th>Code</th>
<th>Course</th>
<th>Instructors</th>
<th>Credits</th>
<th>Year</th>
<th>Language</th>
<th>Institution(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHIM-Y600</td>
<td>Nuclear materials</td>
<td>Rik-Wouter BOSCH, Marc SCIBETTA and Eric VAN WALLE</td>
<td>3</td>
<td>Academic</td>
<td>English</td>
<td>KULeuven : 2 ECTS - ULiège : 1 ECTS</td>
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<td>ELEC-Y600</td>
<td>Introduction to nuclear energy</td>
<td>Geert VAN DEN BRANDEN</td>
<td>3</td>
<td>Academic</td>
<td>English</td>
<td>KULeuven : 3 ECTS</td>
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<tr>
<td>MECA-Y600</td>
<td>Nuclear thermal hydraulics</td>
<td>Yann BARTOSIEWCZ</td>
<td>5</td>
<td>Academic</td>
<td>English</td>
<td>UCLouvain : 5 ECTS</td>
</tr>
<tr>
<td>PHYS-H602</td>
<td>Introduction to nuclear physics and measurements</td>
<td>Nicolas PAULY</td>
<td>3</td>
<td>Academic</td>
<td>French</td>
<td>ULB : 3 ECTS</td>
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<tr>
<td>PHYS-Y601</td>
<td>Nuclear reactor theory</td>
<td>Peter BAETEN, Geert VAN DEN BRANDEN and Matthias VANDERHAEGEN</td>
<td>6</td>
<td>Academic</td>
<td>English</td>
<td>KULeuven : 2 ECTS - UGent : 2 ECTS - VUB : 2 ECTS</td>
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<tr>
<td>PHYS-Y602</td>
<td>Nuclear fuel cycle</td>
<td>Christophe BRUGGEMAN and Kevin GOVERS</td>
<td>3</td>
<td>Academic</td>
<td>English</td>
<td>ULiège : 3 ECTS</td>
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<tr>
<td>PHYS-Y603</td>
<td>Radiation protection</td>
<td>Klaus BACHER</td>
<td>3</td>
<td>Academic</td>
<td>English</td>
<td>UGent : 3 ECTS</td>
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<tr>
<td>PHYS-Y608</td>
<td>Safety of nuclear power plants</td>
<td>Greet JANSSENS-MAENHOUT, Pierre-Etienne LABEAU and Matthias VANDERHAEGEN</td>
<td>5</td>
<td>Academic</td>
<td>English</td>
<td>UGent : 3 ECTS - ULB : 2 ECTS</td>
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</table>

**Elective modules**

A total of nine credits chosen from the following

<table>
<thead>
<tr>
<th>Code</th>
<th>Course</th>
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<th>Credits</th>
<th>Year</th>
<th>Language</th>
<th>Institution(s)</th>
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</thead>
<tbody>
<tr>
<td>PHYS-Y605 (optional)</td>
<td>Advanced nuclear materials</td>
<td>Rik-Wouter BOSCH, Marc SCIBETTA and Eric VAN WALLE</td>
<td>3</td>
<td>Academic</td>
<td>English</td>
<td>KULeuven : 2 ECTS - ULiège : 1 ECTS</td>
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<tr>
<td>PHYS-Y607 (optional)</td>
<td>Nuclear and radiological risk governance</td>
<td>Greet JANSSENS-MAENHOUT and Fernand VERMEERSCH</td>
<td>3</td>
<td>Academic</td>
<td>English</td>
<td>UGent : 1 ECTS - UCLouvain : 2 ECTS</td>
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<tr>
<td>PHYS-Y609 (optional)</td>
<td>Advanced radiation protection/radiation ecology</td>
<td>Klaus BACHER</td>
<td>3</td>
<td>Academic</td>
<td>English</td>
<td>UGent : 3 ECTS</td>
</tr>
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</table>
Advanced courses of the nuclear fuel cycle | Christophe BRUGGEMAN and Kevin GOVERS

- 3 credits
- academic year
- ULiège: 3 ECTS

Advanced course elective topic | Peter BAETEN

- 3 credits
- academic year
- VUB: 3 ECTS

Advanced nuclear reactor physics and technology | Hamid Ait ABDERRAHIM

- 3 credits
- academic year
- English
- UCLouvain: 3 ECTS

Memory

Master thesis

- 20 credits
- academic year
- English