1. Module title: Linux: Basics, Concepts, Applications

2. Field / responsibility of: Physics / the department, the Dean of Studies

3. Module contents:

- Linux and Unix
- File system, important Linux commands
- Process administration, I/O redirection, pipes
- Linux distributions
- Overview of user software on Linux
- Installation of Linux
- Devices and processes
- Networking fundamentals, ISO/OSI model
- Computer access using keys
- Kernel, booting, logging, package administration
- User administration, server services, security
- Shell programming with the bash
- Regular expressions, find/grep/awk
- Software development on Linux, libraries

4. Qualification objectives of the module / competencies to be acquired:

This module enables participants to use Linux competently even for advanced scientific purposes.

5. Prerequisites for participation:

a) Recommended knowledge: None

b) Prerequisite courses: None

6. Module can be used for:

M.Sc. in Physics, M.Sc.in Nanoscience, M.Sc. in Computational Science, Teacher Training for Academic Secondary School, Teacher Training for Physics

7. Module is offered:

On a semiannual basis

8. Module can be completed in:

1 semester

9. Recommended semester of study:

1

10. Overall module workload / number of credit points:

Workload:
Total number of hours: 90
Allocation:
1. Attendance: 2 credit hours
2. Independent study (including exam preparation/ exam): 60 hours
Credit points: 3

In order to obtain the credit points listed in section 10, all requirements given in sections 11 and 12 must be met.

11. Module components:

<table>
<thead>
<tr>
<th>Nr.</th>
<th>Req./req. elective</th>
<th>Form of teaching</th>
<th>Subject area/topic</th>
<th>Credit hours</th>
<th>Coursework</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHY-M -VS 5</td>
<td>Compulsory</td>
<td>Lecture, Practical course</td>
<td>Linux: Basics, concepts, applications</td>
<td>2</td>
<td>Practical exercises</td>
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</table>
## 12. Module exam:

<table>
<thead>
<tr>
<th>Nr.</th>
<th>Competence / topic</th>
<th>Type of exam</th>
<th>Duration</th>
<th>Time / notes</th>
<th>Weighting for module grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHY-M</td>
<td>Linux: Basics, concepts, applications</td>
<td>Project work</td>
<td></td>
<td>Completion of all practical exercises</td>
<td>0 - ungraded</td>
</tr>
<tr>
<td>-VS 5</td>
<td></td>
<td></td>
<td></td>
<td></td>
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