

HPC Certification Forum

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The **HPC** Certification Forum

Goals

- Fine-grained HPC knowledge representation \Rightarrow Competence Standard
 - ▶ What competences exist, how are they defined?
 - ▶ Puzzle of competences for everyone (practitioners, students, admins)
 - ▶ Supporting navigation and role-specific knowledge maps
- Establishing international certificates attesting knowledge
- Supporting an ecosystem around the HPC competences

Scope of the forum

- Central authority for competence representation, certification, and support
- Purposeful limitations of the forum:
 - ▶ We do not compete with content providers
 - ▶ We do not create a curriculum (university/centers responsibility)

The **HPC** Certification Forum

Organization Details

- An independent international body
- Organized into
 - ▶ Steering board (elected)
 - ▶ Full members (with voting rights) - Contributors
 - ▶ Associate members (anyone and any institution)
 - ▶ Collaboration with e.g., SIGHPC Education Chapter

Activities

- Curating and maintaining the **Competence Standard**
- Providing tools and ecosystem around the competences

Organization

Organization of the members

- Webpage is the central hub (<https://www.hpc-certification.org>)
- Mailinglists (news, members, board)
- Monthly public meetings on our Slack channel
- Monthly meeting of the board
- Annual general assembly (BoF at ISC or independent workshop)

Data handling

- Everything* is developed/available in the open
GitHub (<https://github.com/HPC-certification-forum>)
- Exception are examination questions

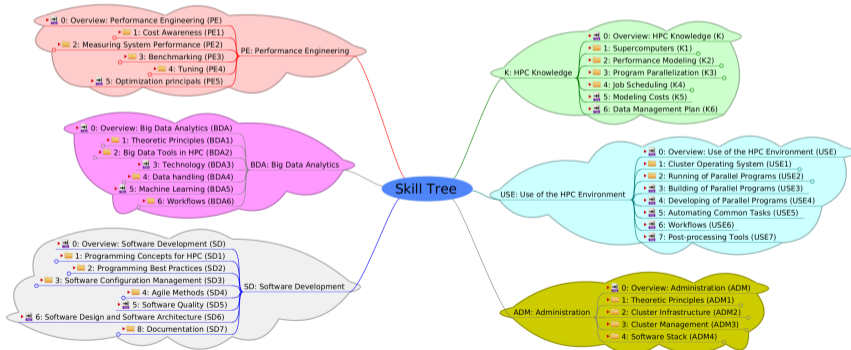
Outline

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Classification of Competences

- A **skill** defines the contents to be learned and tested
- The **skill tree** organizes the competences as hierarchical skills
- Certificates bundle several skills into attestable unit



Classification of HPC Competences

■ Granularity of skill descriptions

- ▶ Too fine \Rightarrow content of a skill is predefined at leaf level
- ▶ Too coarse \Rightarrow no help for structuring the material
- ▶ Guiding principle: leaf node should be covered in 1-2 hour lecture/workshop

■ Organization of HPC skills

- ▶ A Skill topic contains multiple skills and topics building on each other
- ▶ Each Skill topic has an overview which can be referenced and contains all important information to be learned
- ▶ A Skill contains a detailed description and a list containing the exact content
- ▶ Requirements can be part of skill tree or external (i.e. basic programming knowledge)

■ Verification of skill tree and certification approach

- ▶ Feedback by the HPC community/practitioners justify the approaches

Status / Previous Activities

- Development version of the Competence Standard is online
 - ▶ Git managed Markdown files
 - ▶ Files are also available in a Wiki (for interaction)
- Developed various processes
- Supporting experts to adopt skills
 - ▶ Enable experts to curate skills that are in their field of expertise
 - ▶ Similar to code maintainer - various contributions this year
- Working on sponsoring
- Developed first (but limited!) exam



This training covers (partially)
- K1.1 System architectures
- K1.2 Hardware architectures
See <https://hpc-certification.org/c/1.0>

All our developments are under open licenses (except the exam questions)

Contribution to the Skill-Tree High-Level Editing

How can members contribute?

- Webpage with Markdown version controlled in Git
 - ▶ <https://www.hpc-certification.org/wiki/skill-tree/b>
 - ▶ GitHub: <https://github.com/HPC-certification-forum/skill-tree>
 - Pull requests, reviews, comments, ...
- Editing a MindMap, the structure of Skills
 - ▶ Synchronized with the skill tree in Git
 - ▶ Uses the OpenSource tool Freeplane
- Discussion on our Slack
- Documented in our processes section
- See our videos on YouTube