

NAFEMS PSE Certification *at Knorr-Bremse*

David Felhos, Knorr-Bremse



The Technical Analysis/Simulations department of Knorr-Bremse is responsible for supporting the product development process by applying analytical and numerical methods. We employ numerous talented engineers worldwide to offer solutions of the highest quality. The recruitment and training of these people is key to maintaining and continuing to develop our capabilities.

We aim at building models and simulations which are reliable, reproducible and of high quality; therefore colleagues are encouraged to be involved in both internal and external training, seminars and conferences. Usually engineers take care of their career progress individually and propose training relating to their specific professional interests. The value of the training is not readily quantifiable so profitability needs to be estimated, i.e. the relationship between the costs and engineering knowledge gained during the training.

In multi-national companies, such as Knorr-Bremse, recruitment is a complex process involving several interview steps. Interviews (sometimes held via telephone) do not provide a full picture about the candidate's skills and competences, therefore previously acquired certifications of independent professional organisations (e.g. NAFEMS PSE) play an important role in these decisions.

Knorr-Bremse is the member of NAFEMS and therefore has access to the E-Library and NAFEMS courses at a reduced rate, which serves as a support for the professional development of our engineers.

Knorr-Bremse took the decision to use the defined NAFEMS PSE as it currently exists with no personalization. This was because:

- The NAFEMS PSE certification is divided into several topics covering the major scientific areas, all of them having three professional levels. The certification is valid for three years, after which it needs to be renewed.
- The certification process offered the option of face-to-face interviews and it was felt that these provided better communication between assessors and candidates than web interviews. Assessors were also given the responsibility of suggesting changes to the level claimed by the candidate (either higher or lower).
- The PSE Competency Tracker is used as a helpful guide to engineers, indicating knowledge requirements and thus helping in the preparation of the PSE Certification assessment. Stepping through the Tracker is also a useful guide for engineering references and training.
- The manager can review the competencies of his engineers via the Competency Tracker website.

The Knorr-Bremse objective for using PSE Certification is four fold:

- (1) certify all the engineers in the main numerical analysis team
- (2) certify our engineers and those contracted by us in all our worldwide offices.
- (3) ensure that newly recruited engineers are suitably certified.
- (4) maintain and manage the professional development of all our engineers via the NAFEMS PSE Competency Tracker and Certification enabling engineers to improve their levels within already certified technical areas and to gain knowledge to expand into new technical areas.

We have already progressed with stage (1) and 15 engineers were assessed by NAFEMS in face-to-face interviews: 10 simulation engineers from Hungary, 2 from China and 3 contractor FE engineers were successfully certified. The process involved an on-line application, then the evaluations were carried out by two assessors in our office and final results and certificates were delivered individually. A brief assessor report was also provided giving a good overview and some recommendations. Most engineers attained Standard levels in the technical areas that they applied for, some receiving Entry and others receiving Advanced levels. During this process we appreciated the references made to the referees appointed by the engineers to vouch and confirm knowledge levels. The process also indicated that some engineers could apply for certification in other technical areas. The whole process was very positive and has given us a clear understanding about the required improvements to achieve our long term goals.

Company Profile Knorr-Bremse AG

Knorr-Bremse is the world's leading manufacturer of braking systems for rail and commercial vehicles, with sales totalling almost €6 billion in 2015. In 30 countries, some 25,000 employees develop, manufacture and service braking, entrance, control and energy supply systems, HVAC and driver assistance systems, as well as powertrain and transmission control solutions. As a technology leader, the company has been making a crucial contribution to improving safety by road and rail for more than 110 years. Every day, more than a billion people around the world put their trust in systems made by Knorr-Bremse. ■



David Felhos PhD