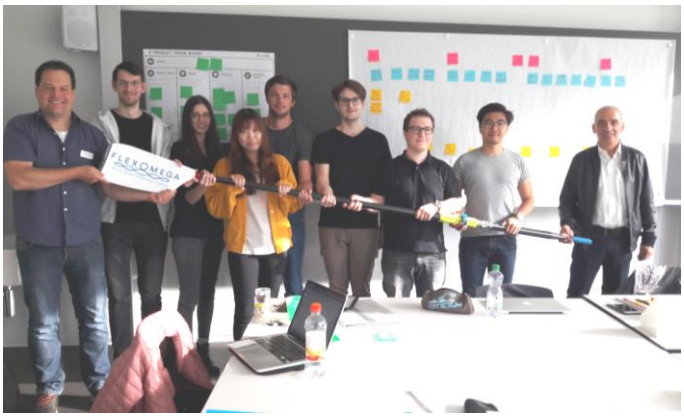
Kriens, December 2019

Dear Readers

In their third and fourth semesters, students at the University of Applied Sciences and Arts Northwestern Switzerland in Brugg undertake an industrial project called 'IP34'. In one of these projects an iPhone app is being developed for FlexOmega Measuring Rowing Power (see Newsletter 2017–2018), which provides rowers with precisely measured data about the quality and intensity of their physical effort while rowing on the boat and also directly after training. This challenging task started in mid-September with a 90-second pitch in front of 70 students, during which the project and the task were presented. Seven personable and motivated students came forward from the audience and volunteered to join the project (see photo). Since then they have been following the Scrum method of teamworking under the supervision of a coach. Similar to a rugby scrum, ideas (the oval ball) are passed from one player to another in order to overcome obstacles (the opposing side). Every three weeks a 'sprint review meeting' takes place (a team meeting lasting half an hour to one hour), in which the 'user stories' implemented by the team are reviewed and future ones determined. The Scrum method used today in various areas promises an agile development, so that the end product optimally meets customer requirements. It was possible to test 'agility' immediately, when two weeks after the first sprint, my project partner Sven, presented a new app design, which went beyond my initial ideas and surprised the team. After an additional sprint, however, the resulting waves were smoothed out and subsequent progress of the development appears promising. Even if we have not yet reached our goal, I am optimistic about the end product because in this project I feel that the information is flowing well, the students are clearly motivated and there is ample competence.

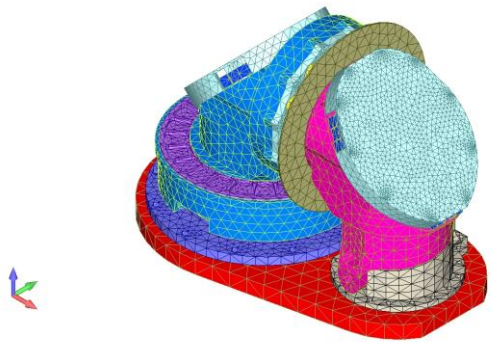


CPA70

Synopta GmbH in the municaplity of Eggersriet, St Gallen, is developing the CPA 70 device for space flight and telecommunications. This is a Coarse Pointing Assembly with a beam diameter of 70 mm, for transmitting information via a laser beam. It weighs less than 7 kg and consists of about 20 main components which are fixed together with screws. Two vertical and mobile mirrors allow the 70 mm laser beam to be directed in any direction. The rotation of the two mirrors in azimuth and elevation direction is secured by two vertical ball bearings. The rotary drive is provided by an annular stator coupled to an annular rotor.

MAM has been fortunate to provide dynamic finite element verification of this high-tech apparatus. Dynamic verification is necessary, because this element, which is integrated into the satellite, is subjected to enormous shocks during the rocket launch. All of the above-mentioned parts were faithfully modelled with solid elements in the FEMAP program from the CAD geometry, and all fixings such as screws and bearings were represented according to their function. A quasi-static load case of 80 g was applied in each of the x-, y- and z-directions as well as a random load case, also in the three directions.

During the test, the random load spectrum is also applied to the vibration table. MAM wishes Synopta every success with this new product and is proud to be part of its realisation.



Wishing you a Merry Christmas and all the best for the New Year.

Georges Mandanis

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Dynamik – Statik – mathematische Modelle – Produktentwicklung für Innovative Zwecke
Geschäftssystem nach ISO 9001

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