IIT Mandi conducts GIAN course on Adaptronics from 4th to 9th February 2019

Indian Institute of Technology Mandi hosted a GIAN course on Adaptronics (Active Shape Control, Active Vibration Control, Active Noise Reduction and Structural Health Monitoring) from 4th to 9th February 2019. The Institute conducted this specialised course in collaboration with the Technical University of Braunschweig, Germany.

Countries such as Germany, USA and Japan are leading in research on Adaptronics. The course provided an opportunity to the students of IIT Mandi as well as students from other Institutes across the country to get first-hand knowledge of the cutting-edge technology.

Highlighting the unique aspects of the course, Prof Michael Sinapius, Course instructor, said, ***"This course is specially designed by combining the aspects which are foundation for smart materials and structures. It introduces students to the important basics and enables them to take up research in the field of smart materials and structures".***

Adaptronics is an interdisciplinary science that deals with the development of adaptive (self- adjusting), actively reacting mechanical structural system with the help of sensors. It works while taking advantage of the elasto-mechanical properties of the 'smart materials' used in it.

Adaptronics is most commonly used in the field of aerial structures. The four major areas of Adaptronics are Active noise cancellation, Active vibration reduction, Structural health monitoring, and Active shape control. The course involved 12 lectures and 6 laboratory sessions.

The course was handled by Prof. Michael Sinapius, Member, Directorate of German Aerospace Centre, Braunschweig, Germany. He is also the Head of Institute of Adaptronics and Functions Integration at Technical University of Braunschweig. Dr. Naser Al Natsheh, Lecturer at the Technical University of Braunschweig, Germany, also conducted some of the laboratory sessions.

Prof Michael Sinapius and his team have specially developed this course. In addition to the theoretical sessions, practical sessions added to the uniqueness of this course. Prof. Sinapius and his team conducted practical sessions using sophisticated devices such as Actuators and Amplifiers brought from Germany.

The course also connected students and faculty of IIT Mandi with Prof Sinapius and his team to discuss future collaborations.

Highlighting the benefits of this course to students, Dr. Vishal Chauhan, Course coordinator, said, *"This is a comprehensive course accommodating the different aspects of Adaptronics in appropriate proportions. Prof. Sinapius and Dr. Natsheh are dedicated instructors. The laboratory sessions entwined between the lectures make it unique experience for learners and make the short term course very effective".*

In May 2011, IIT Mandi signed a MoU with the German varsity which paved the way for interactions and prospective Indo-German collaboration between IIT Mandi and the Technical University of Braunschweig for the project, 'Multi-Material Multi-Purpose Printing (MMMPP).' This collaborative plan was proposed in November 2018 and is still under review with DST (India) and DFG (Germany).

GIAN (Global Initiative of Academic Networks) is a Government of India initiative funded by the Ministry of Human Resource Development. It is aimed at tapping the talent pool of scientists and entrepreneurs, internationally to encourage their engagement with the institutes of Higher Education in India so as to augment the country's existing academic resources, accelerate the pace of quality reform, and elevate India's scientific and technological capacity to global excellence.

Group photo during round table discussion with Prof. Sinapius and Dr. Naser Al Natesh