



TRACTION ENGINEERING

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INTENDED AUDIENCE : Students and Faculty of Agricultural Engineering colleges, Industry professionals and researchers working in the area of traction and precision agriculture.

INDUSTRY SUPPORT : M/s John Deere India Pvt. Ltd. 2. M/s Apollo tyres Pvt. Ltd. 3. M/s CEAT tyres Pvt. Ltd. 4. M/s Yokohama tyres Pvt. Ltd.

COURSE OUTLINE :

This course will cover the basics of traction elements, their behavior in different soil conditions, parameters affecting tractive performance, estimation of tractive power, selection of tyre, traction aids, tractor ballasting, cornering properties and steady state handling of tractor with tyres. A detailed study on these aspects along with online demonstration of measurement of contact area and tractive parameters in the soil bin will enrich the knowledge base of the students and researchers.

ABOUT INSTRUCTOR :

Prof. H. Raheman is at Agricultural and Food Engineering Department of IIT Kharagpur since 1999. He has more than 30 years of teaching and research experience in the field of Farm Machinery and Power. He has taught several courses related to Farm Machinery and Power to UG/PG/PhD students. Prof. Raheman has completed more than 10 Sponsored Research Projects and 6 Consultancy projects related to tyre as Principal Investigator. He has 9 patents to his credit out of which two patents are related to development of track and measurement of traction parameters. Till now, he has supervised 14 PhD students and published 100 research papers in scopus indexed journals. He is a Fellow of NAAS, ISAE and IE India and a long standing member of ASABE. He is the recipient of Jyoti award (2010) and Commendation Medal (2015) from ISAE.

COURSE PLAN :

Week 1: Fundamentals of traction and traction elements

Week 2: Mechanics of wheel and characterization of terrain response

Week 3: Methods and parametric analysis of wheels (rigid and pneumatic)

Week 4: Methods and parametric analysis of track

Week 5: Measurements of performance parameters of tyre in a soil bin (laboratory)

Week 6: Effect of tyre parameters and operating parameters on tractive performance and selection of tyres

Week 7: Traction aids and cornering properties of tyre

Week 8: Steady state handling characteristics of tractor with tyres