Course code	Course title	Responsible lecturer
FoMU_523	Forest mensuration, growth and yield modeling	
Contents and goals of qualification	**Contents**: Introduction to instruments and methods for tree me nsuration, establishment and analysis of sample plots in natural forests and plantations. Sampling theories and Stand measurements. Estimation of form factors, basal area, biomass and timber volume of trees and forest stands. Allometry equations for carbon accounting. Application of GIS and Remote sensing in forest resource assessment. Planning and implementation of forest inventory in plantations, woodlands and high forests. Analysis of the global forest resource assessment reports. Computer based exercises and practical exercises in forest mensuration and inventory. Modeling and simulation of tree and forest growth, timber yield and biomass. Biometrical methods with exemplary data sets. comparison of forest yield model and actual forest yield data for decision making in annual and final forest harvesting and Silvicultural and forest management planning; Statistical and regression approaches and computer software's applied in developing forest yield model for open woodland, closed forest natural and plantation forests; GIS and remote sensing based Forest yield assessment and modeling and developing such data base; Case studies in selected forested and wood land areas. **Practical session**: tree and forest measurements, sampling and forest inventory. Practical exercises of growth and yield modeling and simulation. **Goals of qualification**: Students will be able to use different forest mensuration tools and understand their application. Graduates will be able to plan and implement tree and forest inventories, estimate basal area and volume of forest stands. Students will be able to understand the approaches to tree and forest modeling, develop and apply growth and yield models for forest management.	
Modes of teaching and learning	The course comprises: 2 hr/wk Lecture and 3 hrs/wk practical (exercise, and independent studies)	
Applicability	Compulsory	
Credits and assessment	3 (2+3) Credit hour; Field exercises and lab (30%), Group project and presentation (30%), Written exam (40%)	
Text books	West P.W. 2009. Tree and Forest Measurement. 2nd Edition. Springer Dordrecht Heidelberg London New York Loetsch, F.; Haller, K. E. (1964) Forest inventory. Vol. I. BLV-Verlag. München. Weiskitte AR. Hann DW. Kershaw JA. Vanclay JK. 2011. Forest growth and yield modeling. John Wiley & Sons, Ltd. Recent peer reviewed journal papers published in the Ethiopian context shall be used for seminars	