



Luiz de Queiroz College of Agriculture

Course Offerings

Degree codes:

- 11010 - Agriculture
- 11020 - Forestry
- 11040 - Licentiate Degree in Agriculture
- 11050 - Economics
- 11061 - Food Science
- 11070 - Biological Sciences (104 = Licentiate Degree; 4 = Bachelor Degree)
- 11080 - Environmental Management
- 11090 - Management

ID	Course Name	Professor	Course Content Summary	Total Course Hours	Semester	Degree code
LEB0140	Physics	Sergio Oliveira Moraes	Introduction and vectors, Newton's Laws, Electricity and magnetism, Electromagnetic waves.	60	1 st	11061
LEB0200	Agro-environmental Physics	Jarbas Honório de Miranda Paulo Leonel Libardi Quirijn de Jong van Lier Sérgio Oliveira Moraes	Radiation and conduction, gaseous thermodynamic systems, physical soil water.	60	1 st	11020 11010
LEB0210	Geoprocessing	Carlos Alberto Vettorazzi	Selected topics on Surveying, cartography and geodesy; Global positioning systems (GPS); Photogrammetry principles; Remote sensing physical principles; Introduction to air and orbital remote sensing; Image interpretation; Geographic information systems: concepts, structure, operations and applications; Geoprocessing applied to biological and environmental sciences.	60	2 nd	11070 11080
LEB0244	Energy Resources and Environment	Thiago Liborio Romanelli	Energy sources; Use planning; Energy and environment relation; National and world energetic overview; Energy flow environmental analyses.	30	1 st	11010 11020 11061 11050 11070 11080



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LEB0306	Agricultural Meteorology	Fábio Ricardo Marin Felipe Gustavo Pilau Paulo César Sentelhas	Meteorological/Climatological factors and elements; Climates of Brazil; Radiant energy and energy balance in the Earth surface; Air and soil temperatures; Air humidity; Precipitation; Evapotranspiration; Water balances based on climatological information: Thornthwaite – Mather model, crop water balance; crop water balances for irrigation monitoring; Wind and its importance in the agriculture; Elements of plant diseases climate relationships; Effects of the climate on the growth and development of plants and animals; Weather, climate and agricultural yields; Climate and crops zoning; Agrometeorological information systems.	60	1 st	11010
LEB0332	Mechanics and Power Units in Agriculture	Casimiro Dias Gadanha Jr José Paulo Molin Leandro Maria Gimenez Marcos Milan Thiago Libório Romanelli Walter Francisco Molina Jr.	Mechanics basic concepts; Alternative energy sources; Agricultural tractors: Internal combustion engines, hydraulic system, transmission system, management, performance characteristics, maintenance, ergonomics and safety; Maintenance planning and control.	30	1 st	11020 11010



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LEB0340	Land Surveying and Geoprocessing I	Carlos Alberto Vettorazzi Peterson Ricardo Fiorio Rubens Angulo Filho	Planimetrics: surveying tools; Goniometry; Magnetic declination: course lynching; Distance measuring: direct and indirect; Surveying methods, Area measuring; Rural construction location; Altimetrics: fundamental concepts; Leveling methods; Surveying profiles; Leveling curves; Earthmoving elements and land systematization; Surveying; Surveying Drawings; Rural roads.	90	1 st	11020 11010
LEB0360	Hydrology	Fernando Campos Mendonça Sérgio Nascimento Duarte	Hydrological Cycle. Drainage basins. Rain and surface drainage. Water resource characterization. Extreme events forecast. Water demand. Reservoirs. Water quality. Legislation about water resources.	60	2 nd	11080
LEB0400	Precision Animal Production, Animal Welfare and Ambience	Iran José Oliveira da Silva Késia Oliveira da Silva Miranda	Introduction to the animal behavior study; Thermoregulation - thermo-physical behavior of animals; Thermal energy transfer mechanisms and heat exchange; Psychrometry; Environment and comfort; Ethology applications in management and animal production; Concepts, Principles and fundamentals of animal welfare; Precision animal production; Seminars.	60	2 nd	11070 11010



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LEB0408	Forest Meteorology	Felipe Gustavo Pilau	Meteorological/Climatological factors and elements; Climates of Brazil and South America; Water balance application in forestry; crop water balances for irrigation monitoring; Wind and its importance in the agriculture; Effects of the climate on the growth and development of plants and animals; Weather, climate and agricultural yields; Climate changes caused by deforestation.	60	2 nd	11020
LEB0418	Rural Buildings and Technical Drawing	Iran José Oliveira da Silva Késia Oliveira da Silva Miranda	Introduction and applicability of the field in vocational training; Building materials: binders, aggregates, mortar, concrete, wood, ceramics, plastics, steel, paints and glass; Structure of foundations: introduction to soil mechanics, subsurface structure, methods of evaluating the degree of soil compressibility, continuous and discontinuous foundations, steps for foundation implementation, calculations and scaling; Concrete structures: overview, measurements, calculations and estimates, design of simple structures; Roof structures: primary and secondary structures, roofing materials, roofing calculation; Technical drawing applied to rural constructions: Technical drawing and basic rules of technical drawing; Country house project: implementation of the architectural design of a country house and its details.	60	1 st	11020 11010



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LEB0428	Principles of Pesticide Application Technology	Casimiro Dias Gadanha Junior	Introduction to pesticide application technology; Legislation and safety aspects; Applicator's exposures; Machinery classification for input application; Machinery for solid application; Machinery for liquid application; Air application; Machinery performance selection and evaluation criteria; Application system economic and operational analysis.	90	1 st	11020 11010
LEB0432	Agricultural Machinery	Casimiro Dias Gadanha Junior Jose Paulo Molin Marcos Milan Thiago Libório Romanelli Walter Francisco Molina Jr. Leandro Maria Gimenez	Machinery for: soil tillage; sowing; fertilizer and lime application; pesticide application; grain harvesting; forage harvesting; sugarcane harvesting; processing agricultural products; Mechanized systems planning, management and control.	60	2 nd	11020 11010



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LEB0447	Precision Agriculture	Jose Paulo Molin	Precision agriculture concepts: history and philosophy of technologies involved; Global Navigation Satellite Systems: concepts, available systems, functioning, limitations, erros, solutions; Monitoring: yield, plant and soil data acquisition; spatial variability analysis; Decision-making: integrated analysis of soil, plant and yield data; causes and effect correlations; interventions and recommendations; Variable Rate Applications: principles, methods and equipment for fertilizers, pesticides, seeds and others; GNSS for agricultural vehicles: light bars, auto pilots and others.	90	1 st	11020 11010
LEB0450	Land Surveying and Geoprocessing II	Carlos Alberto Vettorazzi Peterson Ricardo Fiorio Rubens Angulo Filho	Geoprocessing and its importance in the field of agricultural sciences; Surveying principles; Global positioning systems; Digital Terrain modeling; Remote sensing: physical principles, photogrammetry and photointerpretation principles; Orbital remote sensing systems and their applications; Geographic information systems (GIS) and their principles and applications, the rural properties georeferencing according to the Brazilian Geodetic System.	75	2 nd	11020 11010



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LEB0466	Performance Tests of Agricultural Machinery	Walter Francisco Molina Junior	Introduction to agriculture machine performance evaluation study; Agriculture machine dynamometry; internal combustion motor performance evaluation; tractor performance evaluation; soil preparation implement and machine performance evaluation; machine performance evaluation for fertilizer application; machine performance evaluation for seeding; machine performance evaluation for pesticides machine performance evaluation for cereal harvesting; ergonomics in agriculture machines; visit to the agriculture machine and equipment rehearsal sites; visit to an agriculture machine manufacturing company.	90	1 st	11020 11010
LEB0472	Hydraulics	Rubens Duarte Coelho Sergio Nascimento Duarte Tarlei Arriel Botrel Fernando Campos Mendonça Patrícia Angélica Alves Marques	Fluid Properties; Hydrostatic; Hydrodynamic; Pressurized Flow; Gravitational Flow; Water distribution systems; Pumps and pumping systems; Open Channel Flow; Hydrometry.	60	2 nd	11020 11010



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LEB0480	Water Management in the Drainage Basin Committees	Marcos Vinicius Folegatti Fernando Campos Mendonça	Introduction; Systems of water management in the world; The National Water Resources Management; The Brazilian Water Law 9433/97; Watershed Committees, constitution and composition; The importance of a decentralized managing, participatory, and integrated in relation to other natural resources, without dissociation of the watershed quantitative and qualitative aspects and peculiarities; Technical aspects discussed in the different chambers; Charging for water use; Management of funds raised; Watershed Agency; Major Watershed Committees in Brazil; The need for qualified professionals in agricultural, forestry, environmental and biological areas.	60	2 nd	11070 11080 11020 11010
LEB0490	Energy Sustainability in Agricultural Systems	Thiago Liborio Romanelli	Energy sources; Power sources in the agricultural sector; Energy balance; Energy and material flows; Intensification of production systems.	60	2 nd	11020 11010
LEB0495	Environmental Physics Analysis	Felipe Gustavo Pilau	Cosmology concepts; Interaction between solar radiation and atmosphere; Interaction between solar radiation and vegetation; Measurement and estimative of the energy balance and its partition; Thermodynamic aspects of the atmosphere; Climatological water budget; Greenhouse cultivation.	90	2 nd	11020 11010



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LEB0534	Engineering Expertness and Assessment Applied to Rural Properties		Legal expertise, Litigation assessment; Properties division; Rural properties assessment: Raw soil assessment, survey, value research, homogenization; Reproductive and non-reproductive improvement assessment; Crop assessment; Natural resources assessment; Rural construction assessment; Agricultural machinery assessment; Livestock assessment; Property registry.	60	1 st	11020 11010
LEB0566	Agricultural Mechanized Systems	Leandro Maria Gimenez Thiago Libório Romanelli	Agricultural mechanized systems; Rural property importance; Planning the physical basis of an agricultural property; Edaphic and climatic aspects affecting the mechanized agricultural system; Microcomputer program use in agricultural mechanized systems; Criteria and standards for evaluating mechanized systems operational performance; Agricultural machinery selection based on operational and economic performance; Quantification techniques for mechanized systems in function of their operational system; Management controls for operational performance; Motor mechanized and agricultural production systems economic studies.	90	2 nd	11020 11010



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LEB0589	Management of Agricultural Machinery Systems	Marcos Milan	Concepts on applied quality management of agricultural machinery systems; Agricultural machinery systems planning, control and their maintenance.	90	1 st /2 nd	11020 11010
LEB0606	Water and Irrigation Management in Agricultural Systems	Marcos Vinicius Folegatti Patricia Angélica Alves Marques	Introduction; Applied water control techniques by different methods of irrigation: control by soil data, control by plant water status, control by climate data, combined methods; Tools for water control in soil and plant; Tools for agrometeorological monitoring; Water Management control for different irrigation method; Crop response to irrigation; Irrigation in arid, humid and tropical regions; Water management in agricultural systems and saving possibilities; Agrochemical application with irrigated water; The environment and water management in agricultural areas; Environmental impacts of irrigation; Spreadsheet templates for managing water in soil; AutoCAD projects.	90	2 nd	11020 11010



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LEB0615	Supervised Internship in Biosystems Engineering I	Todos os docentes do LEB	During this course students will have the opportunity to enhance and deepen their practical knowledge related to the following vocational areas: a) Rural constructions: Alternative materials, environmental control projects for animal production; b) Hydraulics: Water management hydraulic system dimension and design for supply, irrigation, hydrology, drainage and pollution control; c) Mechanics and agricultural machinery: agricultural machinery and equipment use, evaluation and management; d) Topography and Geoprocessing: topographic, remote sensory, information system surveys; e) Agricultural physics and agrometeorology: the internship covers collaboration in scientific research in these fields.	105	1 st /2 nd	11020 11010
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LEB0630	Applied Agrometeorology	Paulo Cesar Sentelhas	Annual crops (potato, rice, cotton, sugar-cane, dry-bean, soybean, maize and wheat): temperature, photoperiod and water requirements, influence of weather conditions on pests and diseases occurrence, damage caused by frost, hail, wind and high temperature; Sowing dates based on the crop zoning; Crop models to estimate potential and actual yields; Perennial crops (coffee, citrus, rubber tree, grape and others): temperature, photoperiod and water requirements, influence of weather conditions on pests and diseases occurrence, damage caused by frost, hail, wind and high temperature; Planning and management in function of the climate, crop zoning; Crop models to estimate potential and actual yields;	90	2 nd	11010
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LEB0635	Supervised Internship in Biosystems Engineering II	Todos os docentes do LEB	During this course students will have the opportunity to enhance and deepen their practical knowledge related to the following vocational areas: a) Rural constructions: Alternative materials, environmental control projects for animal production; b) Hydraulics: water management hydraulic system dimension and design for supply, irrigation, hydrology, drainage and pollution control; c) Mechanics and agricultural machinery: agricultural machinery and equipment use, evaluation and management. Machinery testing laboratory; Environmental mechanization; d) Topography and Geoprocessing: topographic, remote sensory, geographic informations system. e) Agricultural Environmental Physics and Agricultural Meteorology: the internship covers collaboration in scientific research in these fields.	105	1 st /2 nd	11020 11010
LEB1302	Physics for Biology	Sergio Oliveira Moraes	Laws of thermodynamics; Fluids; Mechanical Waves and Light.	60	2 nd	11070



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LEB1440	Hydrology and Drainage	Fernando Campos Mendonça Sérgio Nascimento Duarte	I – HYDROLOGY - Hydrological cycle. Rain. Drainage Basins. Watercourses. Water demand and hydric resource availability. Reservoirs: groundwater, aquifers and Wells. Water quality. Legislation. Extreme hydrological events forecast. Heavy rains and surface flow. II – DRAINAGE - Salinity control, saline and sodic soil management. Soil water excess control. Surface drainage; Underground drainage. Typical systems and dimensioning. Drainage project elaboration.	60	1 st	11010
LEB1571	Irrigation	Jose Antonio Frizzone Marcos Vinicius Folegatti Patricia Angélica Alves Marques Rubens Duarte Coelho Tarlei Arriel Botrel	Water relations in the soil-plant-water system; Sprinkler irrigation; Surface irrigation - furrow; Flood Irrigation; Trickle irrigation.	60	1 st	11020 11010
LEB0410	Climate Changes and Agriculture	To be defined	Climate change and variability. Climate changes and agriculture. Emission mitigation of Brazilian agriculture. Vulnerabilities of Brazilian and global agriculture. Climate and long-term agricultural demand projections: uncertainties and probabilities. Planning for adaptation to the climate changes.	60	2 nd	11010 11020 11070 11080