

Course Code	BYU5304					
Level	05					
Course Title	Soils and Plant Growth					
Credit value	03					
Core/Optional	Optional					
Prerequisites	BYU3500 Pass/ Valid OCAM, BOU1200 EL/pass					
Hourly breakdown	Theory		Practical	Independent Learning	Assessment	Total
	(18 Sessions) 2 x 18 36 hrs	(4 DSs) 2 X 4 8 hrs	(4 days) 6 X 4 = 24hrs 24 hrs	(Sessions 18 X 3 =[54 hrs] +24 X 0.5 [12 hrs] + Online [10 hrs] + recommended readings [10 hrs]) 86 hrs	(2 CAT x 1hr + 1hr PT) 03 hrs	157 hrs
Course Aim/s.	The broad aim of this course is to provide students with a comprehensive understanding of soil formation, properties of soil, maintaining soil fertility, issues with soil degradation and sustainable development					
PLOs addressed by course	<p>PLO1: Knowledge: Explain the fundamental, principles and broader knowledge pertaining to the chosen science disciplines offered for the degree.</p> <p>PLO2: Practical Knowledge and Application. Demonstrate the competency to use the knowledge and practical skills appropriately.</p> <p>PLO3: Communication: Demonstrate the competency in communicating efficiently and effectively to present information, ideas and concepts to the scientific community as well as to the wider society.</p> <p>PLO4: Individual Work, Team Work and Leadership: Demonstrate the competency in working independently and in groups in addressing issues in multi-disciplinary environments and completing the tasks on time through collaborative learning while exhibiting leadership.</p> <p>PLO6: Adaptability and Flexibility: Demonstrate the ability to adapt to diverse working environments using flexible approaches and strategies.</p> <p>PLO8: Vision for Life: Develop the capacity to project for future through identifying self-directed goals and continuously targeting towards them for self-improvement by undertaking further studies.</p> <p>PLO9: Lifelong Learning: Develop the capacity to foresee new trends and their impacts and continuously update knowledge and develop skills willingly to meet those future challenges.</p>					
Course Learning Outcomes (CLO)	<p>The students should be able to:</p> <p>CLO1: Demonstrate a basic proficiency with soil-plant growth principles and terms. (PLO1)</p> <p>CLO2: Critically explain soil chemical, physical and biological properties that impact nutrient cycling and maintain good plant growth. (PLO1, 2 & PLO4)</p> <p>CLO3: Describe soil sampling and soil test recommendations while familiarising and critically evaluating the methods of application. (PLO1, 2 & PLO9)</p> <p>CLO4: Analyse the role of soil colloids, ions, cation exchange, and anion exchange capacities on plant growth. (PLO1 & PLO9)</p> <p>CLO5: Retrieve the knowledge on saline, sodic, and high pH soils and the means of amelioration for plant growth. (PLO1 & PLO9)</p> <p>CLO6: Recall nutrient deficiencies, soil reactions, and fertilization of macro and micronutrients in relation to plant growth. (PLO1 & PLO9)</p> <p>CLO7: Appreciate organic soil amendments as sources of nutrients and to improve soil properties for plant growth. (PLO3 & PLO9)</p> <p>CLO8: Critically investigate the issues related to soil degradation, possible improvements, mitigation measures and sustainable solutions(PLO2& PLO4)</p> <p>CLO9: Develop an appreciation for the complexity and importance of plant/soil/nutrient interactions. (PLO3 & 9)</p> <p>CLO10: Develop higher order and critical thinking skills through applications of soil concepts. (PLO 2 & PLO8)</p>					
Content (Main topics, sub topics)	Rocks and minerals, Processes of soil development I – Decomposition and destructive processes Processes of soil development II – Constructive processes, Classification and Survey of soils, Physical properties of soil I – Colour, particle size distribution and texture, Physical properties of soil I I – Structure, consistency and pore space, Physical properties of soil III – Aeration and temperature, Chemical properties of soil, Plant nutrients and their use, Microorganisms in soil Soil Organic matter, Biologically mediated processes in the soil, Fertility characteristics in soils of Sri Lanka and Land Utilisation, Fertilisers and Fertiliser Management, Soil degradation and conservation, Improvement of soil, Soil Conservation and Sustainability					

Teaching Learning methods	Independent and Self- learning <ul style="list-style-type: none"> ▪ Instructional material (IL) ▪ Online components (OL) ▪ Recommended readings (RE) Compulsory practical Contact Sessions Non-compulsory(Optional) contact sessions <ul style="list-style-type: none"> ▪ Continuous assessments: MCQ, SEQ, SE 	
Assessment strategy	Overall CA Mark (OCAM): 40%	Final Assessment: 60%
	30% PT+ 50% of higher mark OBT/NBT (1h) + 20% Other mark OBT/NBT (1h)	Final Evaluation One theory paper (2 hours) 100%
Recommended Readings:	<ul style="list-style-type: none"> • Brady, N.C. (1974) Nature and properties of soils, 9th Edition, Macmillan Publishing company Ltd,. • Panabokke, C.R. (1996) Soils and Agro ecological environments in Sri Lanka, Natural Resources Series No. 2 • Russel, E.W. (1973) Soil Conditions and Plant Growth, Longman, London • Osman, Khan Towhid (2014) Soil Degradation, Conservation and Remediation, SBN 978-94-007-7590-9 	