

Program	BS Botany	Course Code	BOT-309	Credit Hours	2
Course Title	Pteridophytes and Gymnosperms (Theory)				
Introduction					
The course aims to provide the latest developments and information pertaining to the major groups of Pteridophytes and Gymnosperms through their Morphology, Anatomy, Reproductive Biology and Phylogeny.					
Learning Outcomes					
On the completion of the course, the students will be able to:					
<ol style="list-style-type: none"> 1. Develop deep insight and better understanding of the form and structure including reproductive behavior of the Pteridophytes and Gymnosperms 2. Appreciate the Architectural innovations through time and space among Pteridophytes and Gymnosperms not known before. 					
Course Contents					
PTERIDOPHYTES					
<ul style="list-style-type: none"> • Stelar System in Pteridophytes: Classification and Evolution. Maturation pattern of Xylem. • Psilopsida: General Characters, Classification (<i>Rhyniophyta, Zosterophyllophyta, Trimerophyllophyta</i>), Affinities and Phylogenetic importance. Selected Palynomorph Genera representing above mentioned Phyla of Psilopsida and their morphographic description. • Lycopsida: General Characters, Classification (<i>Drepanophycales, Protolepidodendrales, Lepidodendrales, Lycopodiales, Selaginellales, Pleuromiales, Isoetales</i>), Affinities and Phylogenetic importance, Selected Palynomorph Genera representing above mentioned Lycopsid orders and their morphographic description. • Sphenopsida: General Characters, Classification (<i>Pseudoborniales, Sphenophyllales, Equisetales</i>), Affinities and Phylogenetic importance. Selected Palynomorph Genera representing above mentioned Sphenopsid orders and their morphographic description. • Pteropsida - Ferns: General Characters, Classification and Phylogenetic importance of <ul style="list-style-type: none"> • Eusporangiate Ferns (<i>Ophioglossales, Marratiales</i>) • Leptosporangiate Ferns (<i>Marseliales, Salviniiales</i>) • 1.6 Introduction to Neopalynology and Palaeopalynology as an aid to identify Pteridophytes. Selected Palynomorph Genera representing above mentioned Pteropsid orders and their morphographic description. • GYMNOSPERMS: Origin, General Characteristics, Phylogeny and Classification of <ul style="list-style-type: none"> • Bennettiales • Cycadales • Coniferales • Ginkgoales • Gnetales • Selected Palynomorph Genera representing above mentioned Gymnosperm Orders and their Morphographic description. 					