Shiv Chhatrapati Shikshan Sanstha's

Rajarshi Shahu Mahavidyalaya (Autonomous), Latur

Structured Work Plan for Teaching (Odd Semester)

Academic Year: 2019-2020

Details of Classes to be taught

Sr. No.	Class	Name of Assit. Prof.	Subject	Paper
1	B.Sc.I	D.R.Awad	Botany	Biodiversity of Cryptogams and Gymnosperms
2	M.Sc.II			Immunology, Plant Nanotechnology and Forensic Botany

Summary of Lesson Plan:

Sr. No.	Subject	Unit and Chapter to be covered	Date	No. of Lectures	Academic activities to be organized	No. of Test / Assignment with topic and date
1	UNIT – I: BACTERIA and VIRUSES (10 L)	**BACTERIA:** **1.** General characters. **2.** Size, Shape and Ultra structure. **3.** Asexual reproduction (By binary fission). **4.** Sexual reproduction (By conjugation). **5.** Economic importance. **VIRUSES:** **1.** General characters. **2.** Classification based on host. **3.** Ultra structure of TMV. **4.** Economic importance.	04/07/19 To 27/07/19	05 05		
2	UNIT – II: FUNGI (12 L)	**1.** General characters and. **2.** Classification (Alexopolous and Mims, 1979). **3.** Systematic position, occurrence, structure, reproduction, and graphic life cycle of ***Erysiphe.*** **4.** Economic importance. **5.** Mycorhiza (General characters). **6.** General characters of lichens.	01/08/19 To 31/08/19	12	Field Visit	Activity Based Unit Test-I

		7. Types of Lichens. **8.** Economic importance of Lichens.				
3	UNIT – III: ALGAE AND BRYOPHYTES (10 L	**ALGAE:** **1.** General characters. **2.** Classification (F.E.Fritsch, 1935). **3.** Systematic position, occurrence, thallus structure, reproduction and graphic life cycle of ***Oedogonium.*** **BRYOPHYTES:** **1.** General characters. **2.** Classification (N.S.Parihar). **3.** Systematic position, occurrence, thallus structure (external and internal), reproduction, and graphic life cycle of (Developmental stages not expected) ***Funaria.***	05/09/19 To 26/09/19	05 05		
4	UNIT – IV: PTERIDOPHYTES AND GYMNOSPERMS (*13 periods)*	**PTERIDOPHYTES:** **1.** General characters. **2.** Classification (N.S.Parihar) **3.**Systematic position, occurrence, thallus structure (external and internal), reproduction, and graphic life cycle with alternation of generation of (Developmental stages not expect) ***Nephrolepis* (fern).** **GYMNOSPERMS:** **1.** General characters. **2.** Classification (Arnold, 1948). **3.** Morphology of vegetative and reproductive structures (Developmental stages are not expected), and life cycle of ***Cycas.***	27/09/19 To 24/10/19	06 07	Collection of Cryptogams	Unit Test-II

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Academic Year: 2019-2020

Details of Classes to be taught

Sr. No.	Class	Name of Assit. Prof.	Subject	Paper
1	M.Sc.II	D.R.Awad	Botany	Immunology, Plant Nanotechnology and Forensic Botany

Sr. No.	Subject	Unit and Chapter to be covered	Date	No. of Lectures	Academic activities to be organized	No. of Test / Assignment with topic and date
1	Credit- I: Plant Nanotechnology and Its Concepts: (15L)	1.Plant Nanotechnology: An Overview on Concepts, Strategies, and Tools 2. Physical and Chemical Nature of Nanoparticles. 3.Effects of Nanoparticles on Plant Growth and Development 4.Agri-Nanotechniques for Plant Availability of Nutrients 5.Utilization of Nanoparticles for Plant Protection 6.Nanotechnology in Soil-Plant System	24/06/19 To 27/07/19	03 02 03 03 02 02	Guest Lecture	
2	Credit- II: Introduction to Forensic Botany: (15L)	1. Introduction to forensic botany. Botanical evidence on legal investigations .Legal plant definition. Botanical evidence in legal investigations 2. The Use of Botanical Evidence in Criminal Investigations. 3. Evidence collection and analysis: i. Documentation of botanical evidence ii. Collection information needed for each botanical sample iii. How to have botanical	01/08/19 To 31/08/19	03 02 07		Activity Based Unit Test-I

		evidence analyzed iv. Evidence analysis v. Laboratory report 4. Fundamentals of wildlife forensic. Significance of wildlife forensic.		03		
3	Credit- III: Immunology-I (15L)	1.Cells and molecules involved in innate and adaptive immunity, 2. Antigens, antigenicity and immunogenicity 3. B and T cell epitope, structure and function of antibody molecules. 4. Generation of antibody diversity, monoclonal antibodies, antibody engineering, antigen antibody interaction MHC molecules. 5. Antigen processing and presentation, activation and differentiation of B and T cells.	04/09/19 To 28/09/19	03 03 03 03 03	Case Study	
4	Credit-IV: Immunology-II (15L)	1. B and T cell receptors, humoral and cell mediated immune responses, primary and secondary immune responses, 2. The complement system. 3. Toll-like receptors, cell mediated effector functions, inflammation, hypersensitivity and autoimmunity, 4. Immune response during bacterial (tuberculosis), Parasitic (malaria) and viral (HIV) infections congenital and acquired immunodeficiencies, 5. Vaccines.	03/10/19 To 26/10/19	04 02 04 03 02		Unit test -II

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Structured Work Plan for Teaching (Even Semester)

Academic Year: 2019-2020

Details of Classes to be taught

Sr. No.	Class	Name of Assit. Prof.	Subject	Paper
1	M.Sc.I	D.R.Awad	Botany	B.O 2.1; Diversity of Pteridophytes, Gymnosperms and Fossil Plants

Sr. No.	Subject	Unit and Chapter to be covered	Date	No. of Lectures	Academic activities to be organized
1	**Credit:I Pteridophytes-I (15L)**	**1.**Introduction and characteristic features. Diversity of Pteridophytes in India and their migration to land. Affinities of Pteridophyte with Bryophyte and Algae. 2.Recent systems of classification of Pteridophytes. 3.Comparative morphology, reproduction and phylogeny of following orders with reference to the forms mentioned against each: Psilotales (*Tmesipteris*), Lycopodiales (*Lycopodium*), Filicales (*Adiantum*), Equisitales (*Equisetum*), Salviniales (*Salvinia*)	20-12/19 To 16-01/20	03 02 10	
2	**Credit: II Pteridophytes-II (15L)**	1.Apogamy and Apospory. 2.Telome concept. 3.Stelar evolution. 4.Soral evolution. 5.Gamatophyte evolution. 6.Heterospory and seed habit. 7.Economic importance of Pteridophytes	18-01/20 To 14-02/20	02 02 02 02 02 03 02	Guest Lecture
3	**Credit: III Gymnosperms (15L)**	1.Characteristic features of Gymnosperms. 2.Recent system of classification (S.P. Bhatnagar and Alok Moitra). 3.Study of morphology and reproduction Cycadales (*Zamia*),	15/02/20 To 12/03/20	02 03 06	

		(*Gnetum*), Ephedrales (*Ephedra*). 4.Gymnosperms as prospective ancestor of Angiosperms. 5.Economic importance of gymnosperms		02 02	
4	**Credit: IV Paleobotany (15L)**	1.Introduction ,Evolution time scale 2.Principles of Paleobotany: Petrification, Impression and Compression. 3.Indian fossil flora –Glossopteris flora, Rajmahal hill flora and Deccan Intertrappean flora. 4.Paleopalynological techniques- Coal maceration and Lignite maceration 4.Study of morphology and evolutionary trends of: ➢ Bennettitales ➢ Cycadales ➢ Coniferales 5.Economic importance.	13/03/20 To 30/03/20	05 03 07	Field Visit

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Academic Year: 2019-2020

Details of Classes to be taught

Sr. No.	Class	Name of Assit. Prof.	Subject	Paper
1	B.Sc.I	D.R.Awad	Botany	**Paper-III:** Histology Anatomy and Embryology of Angiosperms
2	M.Sc.I			Diversity of Pteridophytes, Gymnosperms and Fossil Plants

Summary of Lesson Plan:

Sr. No.	Subject	Unit and Chapter to be covered	Date	No. of Lectures	Academic activities to be organized	No. of Test Assignment with topic and date
1	**Unit – I: Histology Plant Tissues** (12 L)	**A. Meristematic tissues** and their classification based on position **B.Permanent Tissues** **I Simple Tissue** **II Complex Tissues** **III Secretary Tissues**	20-12/19 To 16-01/20	03 03 03 03	Guest Lecture	
2	**UNIT – II: Anatomy** (12 Periods)	**1.** Anatomy of dicot Stem (Sunflower). **2.** Anatomy of monocot Stem (Maize). **3.** Secondary growth in dicot stem. **4.** Leaf anatomy of dicotyledons (Sunflower) and monocotyledons (Maize). **5.** Anomalous secondary growth in *Dracaena* stem.	18-01/20 To 20-02/20	01 01 02 02 03 03		Activity Based Unit Test-I
3	**UNIT –III: Embryology –I** (11 Periods)	**1** Structure of a Microsporangium (T.S. of anther). **2.** Structure of a Microspore. **3.** Development of male gametophyte (Microgametogenesis).	23/02/20 To 16/03/20	02 01 01	Woolen Model	

		4. Structure of a Megasporangium. **5.** Anatropous ovule **6.** Types of ovule. 7. Development of female gametophyte (Monosporic).		01 02 02 02		
4	**Unit – Iv: Embryology – Ii** (10 L)	**1.** Fertilization. **2.** Post fertilization changes. **3.** Endosperm and its types. **4.** Development of dicot embryo (Crucifer type). **5.** Structure of Dicot seed. 6. Structure of Monocot seed	17/03/20 To 30/03/20	01 01 02 02 02 02		Unit test -II

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