YEAR PLAN 2018-2019
Grade XII Biology

The academic year is divided into three sessions.

Session One : March 20th 2018 to 7th April 2018
: June 4th 2018 to August 22nd 2018
Session Two : September 9th 2018 to December 21st 2018
Session Three : January 3rd 2019 to March 2019

Monthly Test : June, July, October
Term I Examination **:** August 2018
Model I Examination **:** November -December 2018
Model II Examination : January 2019

Name of the text book: ISC Biology XII by Dr. P K Agrawal and Dr. S C Tripathi
Publisher: Balaji Publications

Aim: To develop a scientific attitude towards biological phenomena and acquire the ability to apply the knowledge of Biology in unfamiliar situations.

Enduring Understanding*:* To create awareness about the problems of the environment and the manner in which these problems can be overcome.
Objectives: To enable students to acquire the knowledge and to develop an understanding of biological terms, concepts, facts, principles and formulae
To develop experimental skills needed in Biology practical work.

Guest Speakers: 1. Mr. Satheesh Kumar, Scientist, JNTBGRI, Plant Genetic Resource Division, Palode.
2. Dr. C. Bhaskaran, Former Professor and Head, Dept. of Agri. Extension, College of Agriculture.
Field Trip: To Rajiv Gandhi centre For Biotechnolgy / CTCRI Sreekariyam
To Vayuvanthol Waterfalls , Chathancde
To Veli lake

	Term One:	**June 2018 to August 2018**		
Duration	**Topics**	**Specific Learning objectives**	**Activities /Practical Work /Project**	**Resources**
March-April	**Unit 1** **Reproduction** **(i**)Reproduction in Organisms **(ii)**Sexual Reproduction in Flowering Plants **(ii)**Sexual Reproduction in	*Asexual reproduction *Vegetative reproduction *Sexual Reproduction-Gametogenesis, Fertilisation, *Embryogenesis *Development of male and female gametophyte *Placentation *Pollination *Embryo formation	*Observation of fungal sporangium –Permanent *Germination of pollen grains-Slide preparation *Demonstration of dry and fleshy fruits *Identify the type of inflorescence *T.S of anther and T.S of Ovary *Dissection of flowers and family identification –	Power point presentation Permanent Slides Live specimen Practical manual

		*Endosperm formation	Malvaceae, Solanaceae, Fabaceae, Liliaceae. *T.S of dicot and Monocot seed	Permanent slides
June	**(iii)**Human reproduction	*Internal structure of testis and ovary *Gametogenesis *Menstrual cycle *Physical and chemical events during fertilization *Embryological development *Assisted reproductive technologies	*Examination of microscopic slides of *T.S of morula, blastula and gastrula *T.S of ovary and testis *Seminars and discussions	Videos Nootan and S Chand Power point presentation
	(iv) Reproductive Health	*Need for Reproductive health and prevention of STDs *Birth control, Assisted Reproductive Technologies.	Seminars and Discussions	Videos
	Unit 2 Genetics & Evolution **GENETICS** **(i)**Principles of Inheritance and Variations	*Terminologies in genetics *Monohybrid and dihybrid cross *Mendel's principles of inheritance *Co-dominance, Incomplete dominance, Multiple alleles Pleiotropy.	*Numerical problems in genetics *Analysis of pedigree charts	Videos
	(ii) Chromosomes, Sexlinked Inheritance and Human Genetic disorders	*Chromosome theory of Inheritance * Linkage and crossing over *Mutations *Human Genetic disorders and human genetics	*Solving Genetic crosses	Powerpoint presentation
July	**(iii)**Molecular basis of Inheritance	*Structure of Nucleic acids *Replication of DNA *Protein Synthesis and Gene Expression *Human Genome Project & Rice genome Project *DNA Fingerprinting	*DNA isolation	NEET Biology
	EVOLUTION **(i)**Evolution**-** Origin of life	*Different views on origin of life *Miller and Urey experiment *Evidences of Evolution *Adaptive radiation *Geological time scale	*Mind maps	
	(ii) Theories of evolution and Evolution of Man	*Lamarckism *Darwinism & Neo-darwinism *Examples of natural selection *Artificial selection	*Flow charts	

		*Human evolution		
August		1st Terminal Examination (1st August to 20th August) Onam Holidays		
	Term Two :	**September 2018 to December 2018**		
September	**Unit 4** **Biotechnology and its Applications** **(i)**Biotechnology – Principles and processes. **(ii)**Applications of Biotechnology **Unit 3** **Biology and Human Welfare** **(i)**Human Health and Diseases	*Genetic Engineering(rDNA Technology) *Restriction enzymes *Methods of rDNA technology *Gene amplification *Bioreactors and Downstream processing *Production of insulin and vaccine *Stem cell technology *Gene therapy *Genetically Modified Organisms(Transgenic Organisms) *Biopiracy, Biopatent, Ethical issues *Common Diseases in Humans *Immunity *Immune System Disorders *Lymphoid organs *Alcoholism and Smoking *Drugs	*Visit to a nearby Biotechnology lab *Flow charts Seminars and discussions	ISC Nootan and S Chand Videos S Chand and Noothan

October	**(ii)**Srategies for enhancement in Food Production	*Animal breeding for improvement in food production *Animal Husbandry, Apiculture and Pisciculture *Plant breeding to enhance food production *Crop improvement *Tissue culture and its techniques *Single cell proteins & Biofortification		
	(iii) Microbes in Human Welfare	*Uses of microbes in household products *Industrial products *Antibiotics *Production of biogas *Microbes as biocontrol agents *IPM and Microbes as biofertilizers	*Visit to farm house *Visit to tissue culture lab Project and Record Submission	Powerpoint presentation
	Unit 5 **Ecology and Environment** **(i)**Organisms and Populations	*Ecological adaptations *Population attributes & Population density *Population growth *Population interactions	*Comment on ecological adaptations of plants and animals shown *T.S of xerophytic leaf *T.S of hydrophyte stem	ISC Nootan and S Chand
	(ii) Ecosystem	*Ecosystem patterns and components *Ecosystem functions *Nutrient cycles *Ecological Succession		
November	**(iii)**Biodiversity and its Conservation	*Importance of biodiversity *Patterns of biodiversity *Biodiversity conservation *Historic conventions on biological diversity	*Flow charts Seminars and Discussions	ISC Nootan and S Chand
	(iv) Environmental Issues	*Water pollution and its control *Agrochemicals and their effects *Waste management *Green house effect and climate change *Ozone layer depletion *Deforestation	Seminars and Discussions	
		*Revision	Past Exam Paper Discussions	
December		*First Model Examination *Christmas Holidays		

	Term Three:	**January 2019 to March 2019**		
January	Revision	*Past Paper Discussions *Second Model Examination	*Second Model Examination	
February	Revision	Past paper discussions Practical Board Examination	Practical Mock Test Practical Board Examination	
March		Board Exams	Theory Board Examination	

Facilitators' name : Ms Renuka S & Ms Juhi Sivakumar
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Approved by the Principal