St. PETER'S UNIVERSITY

St. PETER'S INSTITUTE OF HIGHER EDUCATION AND RESEARCH

(Declared under Section 3 of the UGC Act. 1956)
AVADI, CHENNAI – 600 054.

MINUTES OF THE 7th MEETING OF THE BOARD OF STUDIES IN

BIOTECHNOLOGY

Held on 19.09.2019

Members Present

S.No	Name	Designation	Member	Signature
1.	Dr. P. Vasantha Srinivasan	Professor& Head	Chairman	
2.	Dr. N. Radhakrishnan	Professor & Head	Internal Member	
3.	Dr. K. Amala	Assistant Professor	Internal Member	
4.	Ms. P. Yogarajalakshmi	Assistant Professor	Internal Member	
5.	Dr. A. Suresh Kumar	Scientist, Biochemistry & Biotech Division CSIR-CLRI, Chennai	External Member	
6.	Dr. G. Sriram Prasath	Assistant Professor, Department of Biochemistry D.G Vaishnav College	External Member	

St. Peter's Institute of Higher Education and Research Deemed to be University Chennai 600 054

Registrar
St. Peter's Institute of Higher Education and Research
(Deemed to be University U/S 3 of the UGC Act. 1956)
Avadi, Chennai - 600 054

Chairman
Head of the Department
Biotechnology
St. Peter's Institute of Higher Education & Research
Avadi, Chennai - 600 054.

7.1 Considered the minutes of the 6th meeting of Board of Studies in Biotechnology held on 12.03.2019.

RESOLVED that the minutes of the 6th meeting of Board of Studies in Biotechnology held on 12.03.2019 be confirmed

7.2 Reviewed the Regulation & Syllabi of B.Sc. Biotechnology programme under the Regulations 2016 with Choice Based Credit System (CBCS).

RESOLVED that the Regulation and Syllabi of B.Sc. (Biotechnology) programmes under the Regulations 2016 with Choice Based Credit System (CBCS) be continued.

7.3 Considered the inclusion of mini project with 2 credits for B.SC. Biotechnology under Elective paper III-616UBTT04 –Environmental Biotechnology with either ... or provision.

RESOLVED the inclusion of mini project with 2 credits for B.SC. Biotechnology under Elective paper III-616UBTT04 Environmental Biotechnology with either ... or provision under the regulations 2016 be approved as given below

Elective Paper III: Environmental Biotechnology (616UBTT04)

(or)

Mini Project

7.4 Reviewed the Regulation & Syllabi of M.Sc. Biotechnology programme under the Regulations 2016 with Choice Based Credit System (CBCS).

RESOLVED that the Regulation & Syllabi of M.Sc. Biotechnology programme under the Regulations 2016 with Choice Based Credit System (CBCS) be continued.

7.5 Reviewed the curricula developed having relevance to the local/national/regional/global developmental needs with learning objectives including programme outcomes, program specific outcomes and course outcomes of all the programmes.

RESOLVED that the syllabi of B.Sc. (Biotechnology) programme under the Regulations 2016 and M.Sc. (Biotechnology) under the Regulations 2016 developed having relevance to the local/national/regional/global developmental needs with learning objectives including programme outcomes, program specific outcomes and course outcomes of all the programmes be approved.

St. Peter's Institute of Higher Education and Research Deemed to be University Chennai 600 054

Registrar

St. Peter's Institute of Higher Education and Research

(Deemed to be University U/S 3 of the UGC Act, 1956)

Avadi, Chennai-600 054

7.6 Considered to include courses having focus on employability/ entrepreneurship/skill development in the syllabi of B.Sc. (Biotechnology) programme under the Regulations 2016 and M.Sc. (Biotechnology) under the Regulations 2016

RESOLVED that the courses having focus on employability/ entrepreneurship /skill development year wise in the syllabi of B.Sc. (Biotechnology) programme under the Regulations 2016 and M.Sc. (Biotechnology) under the Regulations 2016 to be approved.

7.7 Considered to include value added courses imparting transferable and life skills offered beyond the curriculum in the syllabi of B.Sc. (Biotechnology) and M.Sc. (Biotechnology).

RESOLVED that the value added courses imparting transferable and life skills offered beyond the curriculum such as course on "Cultivation of *Agaricus bisporous*" be approved for the upcoming semester (2019-2020– Even semester).

7.8 Reviewed and considered the curriculum feedback analysis and action taken report based on the suggestions given by the stake holders.

Resolved that the curriculum feedback analysis and action taken report based on the suggestions given by the stake holders to be approved. (Appendix – I)

Date: 19.09.2019

Chairman

Head of the Department
Biotechnology
St. Peter's Institute of Higher Education & Research
Avadi, Chennai - 600 054.

St. Peter's Institute of Higher Education and Research
Deemed to be University
Chennai 600 054

Registrar
St. Peter's Institute of Higher Education and Research
(Deemed to be University U/S 3 of the UGC Act, 1956)
Avadi, Chennai - 600 054

Appendix – I

Program	Stakeholder	Feedback	Recommendation	Action taken
Biotechnology	Students	It was observed that students still required few competent skills to face the industry.	New Teaching pedagogy needs to be incorporated.	Students were asked to present seminar on certain topics & activities like group discussion/quizzes were included
	Teachers	Internal Assessment practices need more improvement to streamline the curriculum taught (especially during First year).	More assessment practices needs to be conducted (apart from regular ones).	Continuous assessment tests & Model Exams were conducted to enhance the follow-up of concepts taught. Along with this online assessment were also conducted.
	Alumni	Improvements on use of online tools were suggested	Faculties were insisted to use more ICT enabled teaching methods and materials like NPTEL	Faculties were suggested to adopt for ICT teaching methods like PPT, online quiz, YouTube videos etc

St. Peter's Institute of Higher Education and Research Deemed to be University Chennai 600 054

Registrar
St. Peter's Institute of Higher Education and Research
(Deemed to be University U/S 3 of the UGC Act 1956)
Avadi, Chennai-600 [illegible]

St. PETER'S UNIVERSITY

St. PETER'S INSTITUTE OF HIGHER EDUCATION AND RESEARCH
(Declared under Section 3 of the UGC Act. 1956)
AVADI, CHENNAI – 600 054.

MINUTES OF THE 8th MEETING OF THE BOARD OF STUDIES IN

BIOTECHNOLOGY

Held on 20.02.2020

Members Present

S.No	Name	Designation	Member	Signature
1.	Dr. P. Vasantha Srinivasan	Professor& Head	Chairman	
2.	Dr. N. Radhakrishnan	Professor & Head	Internal Member	
3.	Dr. K. Amala	Assistant Professor	Internal Member	
4.	Ms. P. Yogarajalakshmi	Assistant Professor	Internal Member	
5.	Dr. A. Suresh Kumar	Scientist, Biochemistry & Biotech Division CSIR-CLRI, Chennai	External Member	
6.	Dr. G. Sriram Prasath	Assistant Professor, Department of Biochemistry D.G Vaishnav College	External Member	

St. Peter's Institute of Higher Education and Research
Deemed to be University
Chennai 600 054

Registrar
St. Peter's Institute of Higher Education and Research
(Deemed to be University)

Chairman

Head of the Department
Biotechnology
St. Peter's Institute of Higher Education & Research
Avadi, Chennai - 600 054.

8.1 Considered the minutes of the 7th meeting of Board of Studies in Biotechnology held on 19.09.2019.

RESOLVED that the minutes of the 7th meeting of Board of Studies in Biotechnology held on 19.09.2019 be confirmed

8.2 Considered the new Regulations and syllabi of I & II semesters of B.Sc. (Biotechnology) from the batch of students to be admitted from 2020-21 under the Regulations 2020 with Choice Based Credit System (CBCS).

RESOLVED that the new regulations and syllabi of I & II semesters of B.Sc. (Biotechnology) with course outcomes from the batch of students to be admitted from 2020-21 under the Regulations 2020 with Choice Based Credit System (CBCS) be approved.(Appendix - I)

RESOLVED to include the following new elective courses in I & II semester from the batch of students to be admitted from 2020-21 under the Regulation 2020 to be approved. (Appendix - 1I)

1. ABTT1602- Plant Physiology
2. ACYT1607- Chemistry -I

8.3 Considered the new Regulations and syllabi of I & II semesters of M.Sc. (Biotechnology) from the batch of students to be admitted from 2020-21 under the Regulations 2020 with Choice Based Credit System (CBCS).

RESOLVED that the new regulations and syllabi of I & II semesters of M.Sc. (Biotechnology) with course outcomes from the batch of students to be admitted from 2020-21 under the Regulations 2020 with Choice Based Credit System (CBCS) be approved.(Appendix -III)

RESOLVED to include the following new elective course in I semester from the batch of students to be admitted from 2020-21 under the Regulation 2020 to be approved.

1. ABTT1908 – Cell biology and Genetics" (Appendix – IV)

8.4 Considered to include value added courses imparting transferable and life skills offered beyond the curriculum in the syllabi of B.Sc. (Biotechnology) and M.Sc. (Biotechnology).

RESOLVED that the value added courses imparting transferable and life skills offered beyond the curriculum such as course on "Biodiversity and Environment Conservation" be approved for the upcoming semester (2020-2021– Odd semester).

Registrar
St. Peter's Institute of Higher Education and Research
(Deemed to be University U/S 3 of the UGC Act, 1956)
Avadi, Chennai-600 054.

St. Peter's Institute of Higher Education and Research Deemed to be University Chennai 600 054

Date: 20.02.2020

Chairman
Head of the Department
Biotechnology
St. Peter's Institute of Higher Education & Research
Avadi, Chennai-600 054

Appendix – I

St. Peter's Institute of Higher Education and Research
B.Sc. Biotechnology

I Semester

Code No.	Course Title	L	T	P	Credit	Marks		
						CA	EA	Total
ATLT1601-/ AHIT16--/ ATET16--/ AFRT16--	*Language - I (**Tamil**/Hindi/Telugu/French)	5	0	0	4	40	60	100
AENT1638	English – I	5	0	0	4	40	60	100
AENT1642	English For Communication	3	0	0	2	40	60	100
ACYT1608	**Allied –I Bioorganic chemistry	5	0	0	4	40	60	100
ABTT1601	Advance Cell Biology	5	0	0	4	40	60	100
ACYL1608	Allied –I Bioorganic chemistry Lab	0	0	4	2	40	60	100
ABTL1601	Advance Cell Biology Lab	0	0	4	2	40	60	100
Totai		23	2	8	22	280	420	700

II Semester

Code No.	Course Title	L	T	P	Credit	Marks		
						CA	EA	Total
ATLT1602/ AHIT16--/ ATET16--/ AFRT16--	*Language – II (**Tamil**/Hindi/Telugu/French)	5	0	0	4	40	60	100
AENT1639	English – II	5	0	0	4	40	60	100
ABTT1604	**Allied –II General Microbiology	5	0	0	4	40	60	100
AEVT1601	Environmental Science	2	0	0	2	40	60	100
ABTT1603	Molecular Biology	5	0	0	4	40	60	100
ABTL1604	Allied –II General Microbiology Lab	0	0	4	2	40	60	100
ABTL1603	Molecular Biology Lab	0	0	4	2	40	60	100
ASSL1601	Soft Skills – I	2	0	0	1	100	100	100
ASSI1601	Internship-I	0	0	2	1	100	100	100
Total		22	2	10	24	480	620	900

Overall percentage of syllabus revision for B.Sc. – 40.4% for the academic year 2020-2021

St. Peter's Institute of Higher Education and Research Deemed to be University Chennai 600 054

Registrar
St. Peter's Institute of Higher Education and Research
(Deemed to be University U/S 3 of the UGC Act, 1956)
Avadi, Chennai-600 054

St.PETER'S INSTITUTE OF HIGHER EDUCATION AND RESEARCH
(Deemed to be University U/S 3 of the UGC Act, 1956)
AVADI, Chennai – 600054.TamilNadu.
Phone:044-26558080-84
E-mail:registrar@spiher.ac.in
Website:www.spiher.ac.in

IGNITE • INSPIRE • INNOVATE

NEW COURSES FOR THE ACADEMIC YEAR 2020-2021

B.Sc. - BIOTECHNOLOGY

S.No	Programme Code	Programme Name	Course Code	Name of the Course
1	BOU	B.Sc. - Biotechnology	ABTT1601	ADVANCE CELL BIOLOGY
2	BOU	B.Sc. - Biotechnology	ABTL1601	ADVANCE CELL BIOLOGY LAB
3	BOU	B.Sc. - Biotechnology	ABTT1604	GENERAL MICROBIOLOGY
4	BOU	B.Sc. - Biotechnology	ABTT1603	MOLECULAR BIOLOGY
5	BOU	B.Sc. - Biotechnology	ABTL1604	GENERAL MICROBIOLOGY
6	BOU	B.Sc. - Biotechnology	ABTL1603	MOLECULAR BIOLOGY LAB
7	BOU	B.Sc. - Biotechnology	ABTT1602	PLANT PHYSIOLOGY
8	BOU	B.Sc. - Biotechnology	ACYT1607	CHEMISTRY -I

St. Peter's Institute of Higher Education and Research
Deemed to be University
Chennai 600 054

Registrar
St. Peter's Institute of Higher Education and Research
(Deemed to be University U/S 3 of the UGC Act 1956)
Avadi, Chennai-600 054

Appendix – II

Elective-I (ABTT1602) - I Semester

Plant Physiology

Course objectives:

1. To acquire theoretical knowledge in photosynthesis and respiration
2. To gain knowledge in physiological and chemical nature of plant growth regulators
3. To learn the basics of photoperiodism and photomorphogenesis of plants.

Unit I. Photosynthesis **No. Of Hours 12**

Photosynthetic Pigments (Chl a, b, xanthophylls, carotene); Photosystem I and II, reaction center, antenna molecules; Electron transport and mechanism of ATP synthesis; C3, C4 and CAM pathways of carbon fixation; Photorespiration.

Unit II. Respiration and photorespiration **No. Of Hours 12**

Citric acid cycle; plant mitochondrial electron transport and ATP synthesis; alternate oxidase; photorespiratory pathway.

Unit III. Nitrogen metabolism **No. Of Hours 12**

Biological nitrogen fixation; Nitrate and ammonia assimilation.

Unit IV. Plant growth regulators **No. Of Hours 12**

Chemical nature of auxin, Gibberlins, Cytokinins, ethylene and Abscissic acid (ABA); physiological effects and mechanisms of action, Gibberlins and Cytokinins, Practical applications of growth hormones in agriculture and horticulture

Unit: V. Plant response to light and temperature **No. Of Hours 12**

Photoperiodism (SDP, LDP, Day neutral plants); Phytochrome (discovery and structure), red and far red light responses on photomorphogenesis; Vernalization.

Suggested Reading

1. Taiz, L., Zeiger, E. Mollar, I. M. and Murphy, A. (2015). Plant physiology and Development 6th edition. . Sinauer Associates Inc., USA.
2. Ross and Salisbury. (2009). Plant Physiology. Cengage Learning (Thompson), New Delhi, India.
3. Buchanan, B.B. and Gruissem, W. (2015). Biochemistry and molecular biology of plants. Willy Blackwell ASPB USA.
4. Dey, P.M. and Harborne, J.B. (2000). Plant biochemistry. Academic Press, UK.
5. Goodwin, T.W. and Mercer, E.I. (2003). Introduction to plant biochemistry. CBS Publishers & Distributors, New Delhi, India.

COURSE OUTCOME

CO1: Explain the significance of photosynthetic process.
CO2: Understand about plant electron transport, respiratory and photo respiratory pathways.
CO3: Gain knowledge in various plant growth hormones and its mechanism of actions.
CO4: Understand about biological nitrogen fixation, its types and ammonium assimilation
CO5: Understand about light and temperature responses on photo morphogenesis.

St. Peter's Institute of Higher Education and Research Deemed to be University Chennai 600 054

Registrar
St. Peter's Institute of Higher Education and Research
(Deemed to be University U/S 3 of the UGC Act, 1956)
Avadi, Chennai-600 054.

Elective-I (ACYT1607) - II Semester

Chemistry - I

Course objectives:

1. To acquire knowledge in Nuclear and Industrial chemistry.
2. To understand the basics of Organic Chemistry.
3. To gain knowledge in the field of Thermodynamics and Chemical kinetics.

UNIT 1: NUCLEAR CHEMISTRY

Fundamental particles of nucleus, isobars, isotones and isomers – Differences between chemical reactions; fusion and fission – Radioactive series, group displacement law – Mass defect, derivation of 1amu = 931 MeV – nuclear binding energy and calculation – Applications of radio isotopes – carbon dating, and medicinal applications.

UNIT II: INDUSTRIAL CHEMISTRY

Fuels- Classification-gaseous fuels like water gas, producer gas, liquefied petroleum gas, gobar gas, compressed natural gas - Fertilizers- Classification – urea ,ammonium sulphate, superphosphate, triple super phosphate, potassium nitrate- manufacture and uses - Silicones - Preparation, properties and applications. Hardness of water: temporary and permanent hardness, disadvantages of hard water - Softening of hard water - zeolite process, demineralization process and reverse osmosis - Purification of water for domestic use: use of chlorine, Ozone and UV light - Definition and determinations of BOD and COD.

UNIT III: FUNDAMENTALS OF ORGANIC CHEMISTRY

Classification of organic compounds -Hybridization in methane, ethane, acetylene, benzene - classification of reagents - electrophiles, nucleophiles and free radicals - Classification of reactions addition, substitution, elimination, condensation and polymerization - Polar Effects - Inductive effect, resonance, hyper-conjugation, steric effect - Keto-enol tautomerism - electrophilic substitution mechanism in benzene (Nitration and Sulphonation) – Heterocyclic compounds - Preparation, properties and uses of furan, Thiophene, pyrrole and pyridine

UNIT IV: THERMODYNAMICS

Definition of Certain terms - system, surrounding, reversible and irreversible process- Limitations of I Law Need for II Law - Different Statements of II. Law - Carnot cycle - Efficiency - Carnot Theorem - Thermodynamic Scale of Temperature - Entropy- Definition, unit and change of entropy for phase transformation -Free energy nature of Process in terms of Free energy and entropy-Statement of Third Law.

UNIT V: CHEMICAL KINETICS

Rate of chemical reaction- Differential rate expression - order and molecularity - Integrated rate expression for first, second, and zero order reactions - Half-life period— Effect of temperature on rate - Activation energy . Arrhenius equation - Arrhenius reaction rate theory- homogeneous and heterogeneous catalysis. Photochemistry - Statement of Grothuss - Draper Law, Stark-Einstein's Law, Quantum Yield. Hydrogen-chlorine reaction (elementary idea only) Photosynthesis, Photosensitization, Phosphorescence Fluorescence, Chemiluminescence - Definition with examples.

Suggested Readings:

1. Morrison, R. N. & Boyd, R. N," Organic Chemistry", Dorling Kindersley (India) Pvt. Ltd, Pearson Education,2016
2. Dr. Veeraiyan V., "Text book of Ancillary Chemistry", High mount Publishing house, 2008.
3. Vaithyanathan S. "Text book of Ancillary Chemistry", Priya Publications,2006.
4. Puri B.R., Sharma and Pathania, "Text book of Physical Chemistry", Vishal Publishing Co., New Delhi.2017.
5. Dara S.S., "Text book of Environmental Chemistry and Pollution Control", S.Chand and Co., NewDelhl, 2014.

St. Peter's Institute of Higher Education and Research Deemed to be University Chennai 600 054

Registrar
St. Peter's Institute of Higher Education and Research
(Deemed to be University U/S 3 of the UGC Act, 1956)
Avadi, Chennai-600 054

COURSE OUTCOME

CO1: Gain knowledge in different types of Nuclear reactions.
CO2: Understand the importance of Industrial Chemistry.
CO3: Acquire knowledge in fundamentals of Organic Chemistry.
CO4: Become familiar with Laws of thermodynamics and concepts.
CO5: Analyze the rate of Thermal and Photochemical Reactions.

St. Peter's Institute of Higher Education and Research
Deemed to be University
Chennai
600 054

Registrar
St. Peter's Institute of Higher Education and Research
(Deemed to be University U/S 3 of the UGC Act, 1956)
Avadi, Chennai - 600 054

Appendix – III

St. Peter's Institute of Higher Education and Research
M.Sc. Biotechnology

Semester I

SUB CODE	Course Title	L	T	P	Credit	Marks		
						CA	EA	Total
ABTT1901	Advanced Biochemistry	5	0	0	4	40	60	100
ABTT1902	Cell and Molecular Biology	5	0	0	4	40	60	100
ABTT1903	Institute Core – I Bio Instrumentation	5	0	0	4	40	60	100
ABTT1906	Program Elective – I- Immunology and immune technology	5	0	0	4	40	60	100
ABTL1901	Advanced Biochemistry Lab	0	0	4	2	40	60	100
ABTL1902	Cell and molecular Biology Lab	0	0	4	2	40	60	100
	Total	**20**	**0**	**8**	**20**	**240**	**360**	**600**

Semester II

SUB CODE	Course Title	L	T	P	Credit	Marks		
						CA	EA	Total
ABTT1909	Food and medical biotechnology	5	0	0	4	40	60	100
ABTT1910	Herbal biotechnology	5	0	0	4	40	60	100
ABTT1911	Open Elective-I - Bioethics and Biosafety	5	0	0	4	40	60	100
ABTT1912	Program Elective-II- Microbiology	5	0	0	4	40	60	100
ABTI1909	Food and medical biotechnology Lab	0	0	4	2	40	60	100
ASSL1901	Soft skills – I	2	0	0	1	-	100	100
ASSI1901	Internship – I/Mini – Project	0	0	4	3	40	60	100
	Total	**22**	**0**	**8**	**22**	**200**	**400**	**600**

Overall percentage of syllabus revision for M.Sc. – 61.9% for the academic year 2020-2021

Registrar
St. Peter's Institute of Higher Education and Research
(Deemed to be University U/S 3 of the UGC Act, 1956)
Avadi, Chennai-600 054

St.PETER'S INSTITUTE OF HIGHER EDUCATION AND RESEARCH
(Deemed to be University U/S 3 of the UGC Act, 1956)
AVADI, Chennai – 600054.TamilNadu.
Phone:044-26558080-84
E-mail:registrar@spiher.ac.in
Website:www.spiher.ac.in

IGNITE • INSPIRE • INNOVATE

NEW COURSES FOR THE ACADEMIC YEAR 2020-2021

M.Sc. – BIOTECHNOLOGY

S.No	Programme Code	Programme Name	Course Code	Name of the Course
1	BOP	M.Sc. - Biotechnology	ABTT1901	ADVANCED BIOCHEMISTRY
2	BOP	M.Sc. - Biotechnology	ABTT1902	CELL AND MOLECULAR BIOLOGY
3	BOP	M.Sc. - Biotechnology	ABTT1903	BIOINSTRUMENTATION
4	BOP	M.Sc. - Biotechnology	ABTT1906	IMMUNOLOGY AND IMMUNO TECHNOLOGY
5	BOP	M.Sc. - Biotechnology	ABTL1901	ADVANCED BIOCHEMISTRY LAB
6	BOP	M.Sc. - Biotechnology	ABTL1902	CELL AND MOLECULAR BIOLOGY LAB
7	BOP	M.Sc. - Biotechnology	ABTT1909	FOOD AND MEDICAL BIOTECHNOLOGY
8	BOP	M.Sc. - Biotechnology	ABTT1910	HERBAL BIOTECHNOLOGY
9	BOP	M.Sc. - Biotechnology	ABTT1912	MICROBIOLOGY
10	BOP	M.Sc. - Biotechnology	ABTI1909	FOOD AND MEDICAL BIOTECHNOLOGY LAB
11	BOP	M.Sc. - Biotechnology	ABTT1908	CELL BIOLOGY AND GENETICS

St. Peter's Institute of Higher Education and Research Deemed to be University Chennai 600 054

Registrar
St. Peter's Institute of Higher Education and Research
(Deemed to be University U/S 3 of the UGC Act, 1956)
Avadi, Chennai - 600 054

Elective-I (ABTT1908) - I Semester

Cell Biology and Genetics

Course objectives:

- The student can understand how the cell is equipped with machineries to conduct activities as the basic structural and functional unit of life.
- The structural features of cell organelles/machineries.The functional mechanisms of cellular phenomena.

Unit : Introduction

Cell: An Introduction. Membrane proteins, lipids. Fluid mosaic model, membrane fluidity, membrane asymmetry, lipid raft. Functions of the membrane. Membrane transport: Passive transport- Diffusion, facilitated diffusion- glucose porter molecules. Channel proteins- aquaporins.

Unit II Extracellular matrix

Extracellular matrix: composition and functions. Cell signaling-Ion channel coupled receptors-synaptic transmission. Enzyme coupled receptors- ras pathway. cAMP as second messengers-glycogen breakdown by epinephrine.ca ions as second messenger. ER: structure and function, Golgi complex: structure, types, protein sorting and trafficking

Unit III Cell organels

Mitochondrion: structural features and functions, Chemi osmotic coupling, Chloroplast -structural features and functions, LHC, rubisco, Nucleus, nuclear pore complex, structure of chromosomes, mitosis and meiosis, Model organisms in cell biology. Cell cycle: G1, S,G2, M phases

Unit IV Mendel's laws

Mendel's laws, dominance, epistasis,multiple alleles-ABO blood groups, pseudoalleles, linkage, sex linkage, linkage groups, two point and three point test crosses, determination of gene order, chromosome mapping, sex influenced genes, sex limited genes.

Unit V Behavioral genetics

Behavioral genetics, Hardy Weinberg principle- natural selection, genetic drift, Genetic variation, Allele frequencies and its changes, mutation , gene flow, random mating, inbreeding, out breeding, assortive mating, hybrid vigour. Mutational analysis using principles of probability-Chi square test

Suggested readings:

1. Principles of Genetics, Snustad D P, Simmons and Jenkins, John Wiley And Sons Inc ISBN-13: 978-1118129210
2. Genetics, Robert Weaver and Philip Hendricks, WH.C. Brown Publishers, Iowa
3. Fundamentals of Genetics, B D Singh, Kalyani Publishers
4. Introduction to Genetic Analysis, Griffiths, Wessler, Lewontin, Gelbart,Suzuki and Miller, Freeman's and Co, New York

COURSE OUTCOME

CO1: Emphasis will be placed on developing an understanding of microbial cell biology, genetics, the interactions of microbes with their environment.
CO2: Students will apply their knowledge of cell biology to selected examples of changes orlosses in cell
CO3: Students will know about the cell and its biology, which will help the students to understand the ori gins of cells and the generation
CO4: Emphasis will be placed on developing an understanding of microbial cell biology, genetics, the interactions of microbes with their environment.
CO5: On completion of course students are able to understand.

St. Peter's Institute of Higher Education and Research Deemed to be University Chennai 600 054

Registrar
St. Peter's Institute of Higher Education and Research
(Deemed to be University U/S 3 of the UGC Act, 1956)
Avadi, Chennai - 600 054