



ST. XAVIER'S COLLEGE

(AUTONOMOUS)

5, Mahapalika Marg, Mumbai - 400 001,
INDIA.

☎ 2262 0661/65

❖ **Minutes and/or Resolutions of Board of Studies meetings held in the last five years for:**

- **Department of Biotechnology**

Programme/s: 1. MSc Biotechnology

- **Summary**

Academic Year	Dates of BoS meetings	Revision in syllabus
2019 - 2020	28-02-2020	x
2018 - 2019	08-03-2019	✓
2017 - 2018	09-03-2018	✓
2016 - 2017	01-03-2017	✓
2015 - 2016	28-01-2016	x
	19-03-2016	✓
2014 - 2015	13-03-2015	✓



ST. XAVIER'S COLLEGE

(AUTONOMOUS)

**5, Mahapalika Marg, Mumbai - 400 001,
INDIA.**

☎ 2262 0661/65

2019-2020



ST. XAVIER'S COLLEGE

(AUTONOMOUS)

5, Mahapalika Marg, Mumbai - 400 001,
INDIA.

☎ 2262 0661/65

PGDBT/BOS 2019-20

ST XAVIER'S COLLEGE – AUTONOMOUS, MUMBAI
POST GRADUATE DEPARTMENT OF BIOTECHNOLOGY

BOARD OF STUDIES MEETING

Day and Date: 28th February 2020 Venue: Department of Biotechnology Time: 2:00 PM

Agenda:

- To pass the minutes of the previous meeting.
- To amend the number of credits for Diploma in Bioinformatics course.
- To discuss the possibility of converting the Diploma in Bioinformatics course to a post-graduate diploma course.
- Any other matter

SUBJECT BOARD- DEPARTMENT OF BIOTECHNOLOGY

Representation	Name	Affiliation	Signature
Chairperson: Head of the Department	Dr. Karuna Gokarn	St. Xavier's College	KR Gokarn 28/2/2020
Department Faculty Members	Ms. Norine D'Souza	St. Xavier's College	Norine 28/2/2020
	Dr. Shiney Peter	St. Xavier's College	Shiney Peter 28/2/2020
VC nominee	Dr. Varsha Mane Associate Professor	UDBT, Univ. of Mumbai	Varsha H 25/2/2020
Industry Expert	Dr. Cyrus Karkaria	President, Lupin Ltd	—
Subject Experts from other Universities	Dr. Debjani Dasgupta Head, SBTBI	D Y Patil University, Navi Mumbai	—
	Dr. Purvi Bhatt Associate Professor	SDSS, NMIMS	—
Experts from outside the college (co-opted)	Dr. Deepti Gupta	Consultant	Deepti 25/2/2020
Other members of staff of the same faculty	Dr Tara Menon Head of Department	Dept.BT, SIES College	Tara Menon
Postgraduate meritorious alumnus	Ms Ketaki Bachal	Research Scholar, IIT Mumbai	Ketaki 28-2-2020



NAAC SSR Cycle 4 (2015-2020):
1_1_2_BoS Minutes - Biotechnology

PRINCIPAL
ST. XAVIER'S COLLEGE
(AUTONOMOUS)
MUMBAI - 400 001.

Deinde



ST. XAVIER'S COLLEGE

(AUTONOMOUS)

5, Mahapalika Marg, Mumbai - 400 001,
INDIA.

☎ 2262 0661/65

PGDBT/BOS 2019-20

POST GRADUATE DEPARTMENT OF BIOTECHNOLOGY

ST XAVIER'S COLLEGE – AUTONOMOUS, MUMBAI

RESOLUTION

“The Subject Board in Biotechnology, St. Xavier's College, Autonomous, hereby approves the Post Graduate Diploma in Bioinformatics Course -syllabus and credit distribution which is being implemented from the academic year 2020-21”, at the meeting held on 28th February 2020, in the Department of Biotechnology, St Xavier's College, Mumbai”

SUBJECT BOARD- DEPARTMENT OF BIOTECHNOLOGY

Representation	Name	Affiliation	Signature
Chairperson: Head of the Department	Dr. Karuna Gokarn	St. Xavier's College	KR Gokarn 28/2/2020
Department Faculty Members	Ms. Norine D'Souza	St. Xavier's College	Norine 28/2/2020
	Dr. Shiney Peter	St. Xavier's College	Shiney Peter 28/2/2020
VC nominee	Dr. Varsha Mane Associate Professor	UDBT, Univ. of Mumbai	Varsha M 28/2/2020
Industry Expert	Dr. Cyrus Karkaria	President, Lupin Ltd	
Subject Experts from other Universities	Dr. Debjani Dasgupta Head, SBTBI	D Y Patil University, Navi Mumbai	
	Dr. Purvi Bhatt Associate Professor	SDSS, NMIMS	
Experts from outside the college (co-opted)	Dr. Deepti Gupta	HBCSE, TIFR	Deepti 28/2/2020
Other members of staff of the same faculty	Dr Tara Menon Head of Department	Dept.BT, SIES College	Tara Menon
Postgraduate Meritorious alumnus	Ms Ketaki Bachal	Research Scholar, IIT Mumbai	Ketaki 28-2-2020



NAAC SSR Cycle 4 (2015-2020):
1_1_2_BoS Minutes - Biotechnology


PRINCIPAL
ST. XAVIER'S COLLEGE
(AUTONOMOUS)
MUMBAI - 400 001.



ST. XAVIER'S COLLEGE
(AUTONOMOUS)
5, Mahapalika Marg, Mumbai - 400 001,
INDIA.
☎ 2262 0661/65

SXC/PGDBT/BOS

February 28, 2020

BOARD OF STUDIES- BIOTECHNOLOGY

Minutes of the meeting

- The meeting was held on 28th February 2020 at 2:00 PM in the PG Department of Biotechnology, St. Xavier's College, Mumbai
- The following members attended the meeting:
 - ✓ Chairperson: Dr. Karuna Gokam (Head of the Department)
 - ✓ Department Teachers:
 - Ms. Norine D'souza
 - Dr. Shiney Peter
 - ✓ VC Nominee:
 - Dr. Varsha Mane, Associate Professor UDBT, Univ. of Mumbai
 - ✓ Other members of staff of the same faculty :
 - Dr. Tara Menon , HOD, Department of Biotechnology, SIES College
 - ✓ Experts from outside the college (co-opted):
 - Dr. Deepti Gupta, Consultant.
 - ✓ Prestigious Alumna: Ms Ketaki Bachal Research Scholar, IIT Mumbai
 - ✓ Dr. Debjani Dasgupta, Dr. Purvi Bhatt and Dr. Cyrus Karkaria excused themselves from the meeting on 28th February with prior intimation.
- At the outset, Dr. Karuna welcomed everyone and read the minutes of the previous meeting held on 21st September 2019. The same was passed by the board members.
- As per the agenda of the meeting, Ms. Norine D'Souza explained about the proposed credit distribution changes to be implemented for the Diploma in Bioinformatics course.
- Members of the Board deliberated about the various aspects of credit allotment for each module and came to a consensus that the Total credits to be awarded on completion of course should be 60. The details are presented in Annexure .
- The proposal to change the Diploma course to Post Graduate Diploma Course in Bioinformatics was discussed . The course content and credit distribution was scrutinised and the following changes were proposed and accepted by the Board members:
 - Nomenclature : Post Graduate Diploma Course in Bioinformatics.
 - Total Credits - 120
- The resolution "The Subject Board in Biotechnology, St. Xavier's College, Autonomous, hereby approves the revised Credit Distribution Pattern for the Diploma in Bioinformatics Course, which is being implemented from the academic year 2019-20", at



NAAC SSR Cycle 4 (2015-2020):
1_1_2_BoS Minutes - Biotechnology

Shinde

PRINCIPAL
ST. XAVIER'S COLLEGE
(AUTONOMOUS)
MUMBAI - 400 001.



ST. XAVIER'S COLLEGE

(AUTONOMOUS)

5, Mahapalika Marg, Mumbai - 400 001,
INDIA.

☎ 2262 0661/65

SXC/PGDBT/BOS

February 28, 2020

the meeting held on 28th February 2020, in the Department of Biotechnology, St Xavier's College, Mumbai" was passed by the Board members.

- The resolution "The Subject Board in Biotechnology, St. Xavier's College, Autonomous, hereby approves the Post Graduate Diploma in Bioinformatics Course -syllabus and credit distribution which is being implemented from the academic year 2020-21", at the meeting held on 28th February 2020, in the Department of Biotechnology, St Xavier's College, Mumbai" was passed by the Board members.
- Annexure – attached.



NAAC SSR Cycle 4 (2015-2020):
1_1_2_BoS Minutes - Biotechnology

PRINCIPAL
ST. XAVIER'S COLLEGE
(AUTONOMOUS)
MUMBAI - 400 001.



ST. XAVIER'S COLLEGE

(AUTONOMOUS)

5, Mahapalika Marg, Mumbai - 400 001,
INDIA.

☎ 2262 0661/65

SXC/PGDBT/BOS

February 28, 2020

Annexure : Amendment of Credits for Diploma in Bioinformatics

ST. XAVIER'S COLLEGE (AUTONOMOUS), MUMBAI

POST GRADUATE DEPARTMENT OF BIOTECHNOLOGY

DIPLOMA COURSE IN BIOINFORMATICS

Total credits: 60 (360 hours) Vs 24 (360 hours)

➤ Teacher-Guided Hours (Lectures & Practical): 195 hours (2 days /week -3hours/day)

➤ Learner guided hours – Non-Contact hours (LG): 165

Credit distribution – Amended

Module	Topic	Amended			Existing (not yet granted)				
		L	P	LG	Credit	L	P	LG	Credit
1	Introduction to Bioinformatics	1	0	0	0	2	0	0	0
2	Biological Databases and Data Mining	5	7	10	4	5	5	10	1
3	Analysis of Biological Sequences	5	10	10	6	5	10	10	1
4	Biostatistics and Bioinformatics	10	5	10	4	10	8	5	3
5	Structural Bioinformatics	8	16	15	8	8	15	15	2
6	Bioinformatics in Drug Designing	15	15	15	8	8	15	15	3
7	Omics in Biology	8	10	10	6	8	10	15	2
8	Next Generation Sequencing Informatics	10	10	20	4	10	10	10	3
9	Coding for Biologists	10	20	15	8	9	12	10	3
10	Project	-	30	60	12			120	6
	Total	72	123	165	60			360	24



NAAC SSR Cycle 4 (2015-2020):
1_1_2_BoS Minutes - Biotechnology

PRINCIPAL
ST. XAVIER'S COLLEGE
(AUTONOMOUS)
MUMBAI - 400 001.



ST. XAVIER'S COLLEGE
(AUTONOMOUS)
5, Mahapalika Marg, Mumbai - 400 001,
INDIA.
☎ 2262 0661/65

SXC/PGDBT/BOS

February 28, 2020

COURSE EVALUATION:

Evaluation:

Criteria	Continuous Assessment 90M	Final exam 90M	Project 120 M
Assignment	40	-	Selection of problem -10M
Problem solving	20	20	Proposal – 20M
Practical	-	40	Report - 50 M
Designing problems	20	-	Poster Presentation – 30 M
Theory paper	--	30	Viva – 10 M
Presentation	10	-	
Total	90 M	90 M	120M
Grand Total		300 M	
Weightage	30%	30%	40%



NAAC SSR Cycle 4 (2015-2020):
1_1_2_BoS Minutes - Biotechnology

PRINCIPAL
ST. XAVIER'S COLLEGE
(AUTONOMOUS)
MUMBAI - 400 001.



ST. XAVIER'S COLLEGE
(AUTONOMOUS)
5, Mahapalika Marg, Mumbai - 400 001,
INDIA.
☎ 2262 0661/65

2018-2019

NAAC SSR Cycle 4 (2015-2020):
1_1_2_BoS Minutes - Biotechnology

PRINCIPAL
ST. XAVIER'S COLLEGE
(AUTONOMOUS)
MUMBAI - 400 001.



ST. XAVIER'S COLLEGE
(AUTONOMOUS)
5, Mahapalika Marg, Mumbai - 400 001,
INDIA.
☎ 2262 0661/65

PGDBT/BOS | 2018-19

POST GRADUATE DEPARTMENT OF BIOTECHNOLOGY
ST XAVIER'S COLLEGE - AUTONOMOUS, MUMBAI
BOARD OF STUDIES MEETING

Day and Date: Wednesday, 8th March 2019

Time: 3:00 PM

Venue: Department of Biotechnology

Agenda:


- To pass the minutes of the previous meeting
- To pass the revised syllabi of M Sc courses
- To recommend changes in the M. Sc syllabus for both years if required.
- To pass a resolution to adopt the changes made in the syllabus and evaluation system for all semesters where ever applicable.
- Any other matter

SUBJECT BOARD- DEPARTMENT OF BIOTECHNOLOGY

Representation	Name	Affiliation	Signature
Chairperson:			
Head of the Department	Dr. Karuna Gokarn	St. Xavier's College	KR Gokarn 8/3/19
Department faculty members	Ms. Norine D'Souza	St. Xavier's College	Norine 8/3/19
	Dr. Shiney Peter	St. Xavier's College	Shiney Peter 8/3/19
	Dr. Ira Vashisht	St. Xavier's College	Ira Vashisht 8/3/19
VC nominee	Dr. Varsha Mane	UDBT, Univ. of Mumbai	Varsha M 8/3/19
Industry Expert	Dr. Cyrus Karkaria	President, Lupin Ltd	—
Subject Experts from other Universities		Head, SBTBI, D Y Patil	
	Dr. Debjani Dasgupta	University, Navi Mumbai	—
	Dr. Purvi Bhatt	Assoc. Prof, SDSS, NMIMS	Purvi Bhatt 8/3/19
Experts from outside the college (co-opted)	Dr. Deepti Gupta	HBCSE, TIFR	Deepti 8/3/19
Other members of staff of the same faculty	Dr Tara Menon	Head, Dept.BT, SIES College	Tara Menon 8/3/19
Postgraduate meritorious alumnus	Ms Ketaki Bachal	Research Scholar , IIT Mumbai	Ketaki 8-3-19



NAAC SSR Cycle 4 (2015-2020):
1_1_2_BoS Minutes - Biotechnology


PRINCIPAL
ST. XAVIER'S COLLEGE
(AUTONOMOUS)
MUMBAI - 400 001.



KNC/PGDBT/BOS

March 10, 2019

BOARD OF STUDIES

Minutes of the meeting

- * The meeting was held on 8th March 2019 at 3:00 PM in the PG Department of Biotechnology, St. Xavier's College, Mumbai
- * The following members attended the meeting:
 - ✓ Chairperson: Dr. Karuna Gokarn (Head of the Department)
 - ✓ Department Teachers:
 - Ms. Norine D'souza
 - Dr. Shiney Peter
 - Dr. Ira Vashisht
 - ✓ VC Nominee: Dr. Varsha Mane, Assoc Prof, UDBT, Univ. of Mumbai
 - ✓ Subject Expert from other Universities: Dr. Purvi Bhatt Assoc. Prof, SDSS, NMIMS
 - ✓ Professional experts:
 - ✓ Experts from outside the college (co-opted):
 - Dr. Deepti Gupta, HBCSE, TIFR
 - Dr. Tara Menon, Head, Dept of Biotechnology, SIES College, Mumbai
 - ✓ Prestigious Alumna: Ms Ketaki Bachal Research Scholar, IIT Mumbai
- * At the outset, Dr. Karuna welcomed everyone and read the minutes of the meeting. The same was passed by the board members.
- * As per the agenda of the meeting, Ms. Norine D'Souza elaborated about the changes in courses SBTS 701,801,901 and 1001.
- * Dr. Shiney Peter explained about the changes in courses SBTS 702, 704, 802, 804 and 902
- * Dr Ira Vashisht explained about the changes in courses SBTS 703 and 803
- * The changes in practical courses were also explained by the three faculty members.
- * The excerpts of changes suggested is documented in the annexure.
- * Members of the Board gave their insights as well as suggestions during the entire discussion. The suggestions made were as follows:
 - Dr. Varsha Kelkar
 - The distribution of lectures per topic can be mentioned for internal reference.
 - The content of subtopic- Vaccines in 702 should be elaborated.
 - The usage of online course content from MIT and Yale university courses for certain genetics and molecular biology topics.



1 | Page

Shinde

PRINCIPAL
ST. XAVIER'S COLLEGE
(AUTONOMOUS)
MUMBAI - 400 001.



ST. XAVIER'S COLLEGE
(AUTONOMOUS)
5, Mahapalika Marg, Mumbai - 400 001,
INDIA.
☎ 2262 0661/65

BAU/PGDBT/BOS

March 10, 2019

- Inclusion of Guyton and Devlin for Neuronal Communications reference,
- The secondary metabolite production content from 801 should be included in 903.
- Rename 801-unit 3 as microbial metabolism
- Inclusion of 3-D organ printing in Tissue engineering.
- Elaborate on practical topics so that students get a fair idea about the depth of content.
- Dr. Tara Menon:
 - Inclusion of clinical correlation while doing metabolism.
 - Include extra reading materials like 'My genome'- Craig Venter for students.
 - Inclusion of carbon credits and Integrated Pest management in 904- unit 1
- Dr. Deepti Gupta:
 - Inclusion of classical papers for genetics and molecular biology concepts.
 - Inclusion of transport related to nutrient uptake, affinity pumps and antiporter -symporter kinetics in 704 -unit 1
 - Inclusion of plant metabolism regulation (particularly carbohydrate metabolism) in 801
 - Inclusion of nonlinear thermodynamics of metabolism
 - Use of case studies about genome analysis
 - Inclusion of plant -Rice genome project in human
 - Exclusion of x- ray diffraction as a technique as it is becoming redundant in use- but inclusion of the same in protein structure study in 701.
 - Blending of tools in R.DNA technology in unit 1 along with mapping techniques.
 - Inclusion of GM crops in 904
- Dr. Purvi Bhat:
 - Distribution of lectures per topic should be included in the syllabus.
 - Inclusion of Metabolomics in 801
 - Inclusion of prokaryotic vector systems in 803
 - Rearrangement of practical content in 8PR for coherence.
- Ms. Ketaki Bachal:
 - Inclusion of cell imaging software understanding in microscopy
 - Inclusion of Journal clubs



2 | Page

Shinde

PRINCIPAL

ST. XAVIER'S COLLEGE
(AUTONOMOUS)
MUMBAI - 400 001.



ST. XAVIER'S COLLEGE

(AUTONOMOUS)

5, Mahapalika Marg, Mumbai - 400 001,
INDIA.

☎ 2262 0661/65

ANC/PGDBT/BOS

March 10, 2019

- Introducing communication modalities like 3-minute thesis presentation.
- The suggestions were deliberated at length and a consensus was taken before the final incorporation.
- The resolution "The Subject Board in Biotechnology, St. Xavier's College, Autonomous, hereby approves the revised syllabi and practical evaluation pattern of the first year Master's Course of studies for the I, II, III and IV semesters, which is being implemented from the academic year 2019-20" at the meeting held on 8th March 2019 in the Department of Biotechnology, St. Xavier's College, Mumbai" was passed by the Board members.
- Certificate Course in Bioinformatics:
The proposal for a certificate course in Bioinformatics was approved by the members.
- ✓ Annexure attached: Changes incorporated in the syllabus.



Alinda

PRINCIPAL

ST. XAVIER'S COLLEGE
(AUTONOMOUS)
MUMBAI - 400 001.



ST. XAVIER'S COLLEGE
(AUTONOMOUS)
5, Mahapalika Marg, Mumbai - 400 001,
INDIA.
☎ 2262 0661/65

PGDBT/BOS | 2018-19

POST GRADUATE DEPARTMENT OF BIOTECHNOLOGY

ST XAVIER'S COLLEGE – AUTONOMOUS, MUMBAI

RESOLUTION


"The Subject Board in Biotechnology, St. Xavier's College, Autonomous, hereby approves the revised syllabi of the first year Master's Course of studies for the I,II, III and IV semesters, which is being implemented from the academic year 2019-20", at the meeting held on 8th March, 2019 in the Department of Biotechnology, St Xavier's College, Mumbai"

SUBJECT BOARD- DEPARTMENT OF BIOTECHNOLOGY

Representation	Name	Affiliation	Signature
Chairperson: Head of the Department	Dr. Karuna Gokarn	St. Xavier's College	KR Gokarn 8/3/19
Department faculty members	Ms. Norine D'Souza	St. Xavier's College	Norine 8/3/19
	Dr. Shiney Peter	St. Xavier's College	Shiney Peter 8/3/19
	Dr. Ira Vashisht	St. Xavier's College	Ira Vashisht 8.3.19
VC nominee	Dr. Varsha Mane	UDBT, Univ. of Mumbai	Varsha M 8/3/19
Industry Expert	Dr. Cyrus Karkaria	President, Lupin Ltd	—
Subject Experts from other Universities	Dr. Debjani Dasgupta	Head, SBTBI, D Y Patil University, Navi Mumbai	—
	Dr. Purvi Bhatt	Assoc. Prof, SDSS, NMIMS	Purvi Bhatt 8/3/19
Experts from outside the college (co-opted)	Dr. Deepti Gupta	HBCSE, TIFR	Deepti 8/3/19
Other members of staff of the same faculty	Dr Tara Menon	Head, Dept.BT, SIES College	Tara Menon 8/3/19
Postgraduate meritorious alumnus	Ms Ketaki Bachal	Research Scholar , IIT Mumbai	Ketaki 8.3.19



NAAC SSR Cycle 4 (2015-2020):
1_1_2_BoS Minutes - Biotechnology


PRINCIPAL
ST. XAVIER'S COLLEGE
(AUTONOMOUS)
MUMBAI - 400 001.



ST. XAVIER'S COLLEGE
(AUTONOMOUS)
 5, Mahapalika Marg, Mumbai - 400 001,
 INDIA.
 ☎ 2262 0661/65

SXC/PGDBT/2018-19

ST. XAVIER'S COLLEGE (AUTONOMOUS), MUMBAI
POST GRADUATE DEPARTMENT OF BIOTECHNOLOGY

Changes incorporated in the Syllabus:

The following document is an excerpt of the changes incorporated into the core syllabus.

Semester I

Course	Biomolecules SBTS0701		
Units	Existing Title	Proposed Title	Change to be incorporated
Unit 1	Protein structure and folding	No change	
Unit 2	Protein Purification, Denaturation and Degradation	Proteins purification, denaturation	Deletion of degradation To be included in Post translational modifications (703)
Unit 3	DNA topology	No change	Addition of DNA Packaging: Nucleosomes and Chromatin Methods to study DNA – protein interaction DNA – protein interaction
Unit 4	Membrane Architecture	No change	Rearrangement of topics Addition of lipid-protein interaction
Course	IMMUNOLOGY SBTS0702		
Units	Entire Immunology topics from two semesters to be merged into one semester.		
Units	Existing Title	Proposed Title	Change to be incorporated
Unit 1	Immunoglobulins	Overview of the Immune system	<ul style="list-style-type: none"> • Hematopoiesis • Innate immunity: Cells involved, signal transduction pathways, soluble molecules, and membrane-associated receptors (Pattern recognition, TLRs, NLRs), Phagocytosis • Antigens: immunogens, haptens • Immunoglobulin : <ul style="list-style-type: none"> ○ fine structure and superfamily ○ Multigene organization of Ig gene, Variable region gene rearrangement, and generation of antibody diversity, Class switching among the constant region • Synthesis, assembly, and secretion of Immunoglobulins
Unit 2	MHC and regulation of Immune Response	Immune Effector Mechanisms	<ul style="list-style-type: none"> • MHC and Regulation of Immune Response • Activation of B and T lymphocytes • Complement system: Functions of Complement,





ST. XAVIER'S COLLEGE

(AUTONOMOUS)

5, Mahapalika Marg, Mumbai - 400 001,
INDIA.

☎ 2262 0661/65

SXC/PGDBT/2018-19

			<p>Components, Activation, and Regulation</p> <ul style="list-style-type: none"> • Cytokines: Properties, Receptors, Antagonists, Diseases, Therapeutic use of cytokines • The inflammatory process: the role of neutrophils and other mediators in inflammation, the role of NF-kb and TNF-α in inflammation, localized, systemic and chronic inflammation and role of anti-inflammatory agents • Autophagy
Unit 3	Effector molecules in Immune Response	Clinical Immunology	<ul style="list-style-type: none"> • Hypersensitivity: Type I, II, III, IV hypersensitivity • Autoimmunity: Organ-specific, mechanism, treatment • Tolerance • Transplantation immunology: Basis of rejection, clinical manifestation of graft rejection, Immune tolerance, Immunosuppressive therapy in clinical transplantation • Tumour immunology: tumours of the immune system, Tumour antigens and tumour evasion of immune system • Immune response to infectious agents: Bacteria, Virus, Parasites, and Fungi • Primary and secondary immunodeficiency
Unit 4	Immune effector mechanisms	Advances in Immunology	<ul style="list-style-type: none"> • Vaccines: Conventional vaccines; Bacterial vaccines; Viral Vaccines; Vaccines based on routes of administration: parenteral, oral, mucosal, intranasal, attenuated and inactivated vaccine; Subunit Vaccines and Toxoids; Peptide Vaccine, Disease specific vaccine design: Tuberculosis Vaccine; Malaria Vaccine; HIV/AIDS vaccine; New emerging diseases and vaccine needs (Ebola, Zika). • Immunotherapy in clinical conditions • Ag-Ab interaction assays for understanding immune biology, diagnostics, and therapeutics (ELISA, Flow cytometry, SPR, RIA, Immunoprecipitation, Immunofluorescence- cytochemistry, histochemistry)



2 | Page

Alinda
PRINCIPAL
ST. XAVIER'S COLLEGE
(AUTONOMOUS)
MUMBAI - 400 001.




ST. XAVIER'S COLLEGE
(AUTONOMOUS)
 5, Mahapalika Marg, Mumbai - 400 001,
 INDIA.
 ☎ 2262 0661/65

SXC/PGDBT/2018-19

Genetics SBTS0703			
	Existing Title	Proposed Title	Change to be incorporated
Unit 1	Genomes- Anatomy and Mapping	DNA replication, repair, and recombination	Shuffling of units
Unit 2	DNA Replication, Repair, and Recombination	Transcription and Translation in Prokaryotes and Eukaryotes	Merging of unit 3 and 4
Unit 3	Transcription in prokaryotes and eukaryotes	Regulation of Gene Expression	Shifted from 803 and inclusion of <ul style="list-style-type: none"> • Regulation in prokaryotes- operons, riboswitches, antisense RNA • Epigenetics
Unit 4	Translation and Post-translational modifications	Eukaryotic Genetics	<ul style="list-style-type: none"> • Yeast genetics: Meiotic crosses, tetrad analyses, non-Mendelian and Mendelian ratios, gene conversion, models of genetic recombination, yeast mating type switch; dominant and recessive genes/mutations, suppressor or modifier screens, complementation groups, transposon mutagenesis, synthetic lethality, genetic epistasis. • Drosophila genetics: Monohybrid & dihybrid crosses, back-crosses, test-crosses, analyses of autosomal and sex linkages, screening of mutations based on phenotypes and mapping the same, hypomorphy, genetic mosaics, genetic epistasis in context of developmental mechanism • Transmission genetics: single gene inheritance, beyond Mendel's law, genetics of immunity: blood grouping
Cellular Processes SBTS0704			
	Existing Title	Proposed Title	Change to be incorporated
Unit 1	Membrane studies	Membrane studies	Inclusion of Transport across mitochondria and chloroplast Transport related to nutrient uptake
Unit 4	Cell cycle and its regulation	Cell cycle regulation and Cancer biology	Inclusion of Cancer biology: genetic basis (oncogenes, tumor suppressor genes), Signaling pathways involved (overview), Senescence, telomeres, carcinogens, Tumorigenesis, Tumor progression, metastasis, EMT



Page


 PRINCIPAL
 ST. XAVIER'S COLLEGE
 (AUTONOMOUS)
 MUMBAI - 400 001.




ST. XAVIER'S COLLEGE
(AUTONOMOUS)
 5, Mahapalika Marg, Mumbai - 400 001,
 INDIA.
 ☎ 2262 0661/65

SXC/PGDBT/2018-19

Semester II

Course		Metabolism SBTS0801	
Units	Existing Title	Proposed Title	Change to be incorporated
Unit 1	Carbohydrate and Lipid metabolism	Photosynthesis	<ul style="list-style-type: none"> • Overview of Photosynthesis, light absorption energy conversions, electron pathway chloroplast membranes, ATP synthesis, organisation and regulation of photosynthetic complexes. • Carbon dioxide fixation, regulation (C₃ and C₄ Benson cycle), and variations in mechanisms. • Respiration and Photorespiration
Unit 2	Protein and Nucleic acid metabolism	Plant Metabolism	<ul style="list-style-type: none"> • Metabolism: Types of metabolic pathway, main class of metabolic reactions (using already studied pathways) • Carbohydrate metabolism in plants (sucrose, Starch) • Overview of plant secondary metabolism, Secondary metabolites, Function of Secondary Metabolites (alkaloid, terpenoids, phenols) • Compartmentation of Secondary Metabolites: Cytosol, Mitochondria, Vesicles, Endoplasmic reticulum: chloroplast
Unit 3	Plant metabolism	Animal metabolic pathways and their clinical relevance	<ul style="list-style-type: none"> • Pentose phosphate pathway • Uronic acid production and importance • Metabolism of other important sugars – fructose • Nucleotide metabolism: purine and pyrimidine • Essential fatty acids – Sources, Biosynthesis, actions of EFAs and their metabolic effects on membrane fluidity, second messenger systems, EFAs in various pathological processes etc. • Biochemical role of vitamins and minerals, coenzymes and cofactors • Overview of glycan metabolism and importance • Biochemical role of vitamins and minerals, coenzymes and cofactors
Unit 4	Applications of Cell culture in Metabolic engineering	Microbial Metabolism and Its Significance	<ul style="list-style-type: none"> • Amino acid metabolism and metabolic intermediates • Integration of amino acid metabolites into central metabolic pathway • Systems /metabolic engineering strategies for production of amino acids <ul style="list-style-type: none"> ○ Pathway-focused approaches, Systems




 PRINCIPAL
 ST. XAVIER'S COLLEGE
 (AUTONOMOUS)
 MUMBAI - 400 001.



ST. XAVIER'S COLLEGE
(AUTONOMOUS)
5, Mahapalika Marg, Mumbai - 400 001,
INDIA.
☎ 2262 0661/65

SXC/PGDBT/2018-19

			<p>biology-based approaches; Evolutionary approaches e.g.: Amino acids like threonine, glutamate, lysine, and tryptophan using microbial systems.</p> <ul style="list-style-type: none"> Integration of fatty acid metabolism into central metabolic pathways. Mechanism of Nitrogen fixation using a bacterial system <ul style="list-style-type: none"> Overview of glycan metabolism and importance
--	--	--	--

Animal Biotechnology SBTS802			
Course	Existing Title	Proposed Title	Change to be incorporated
Unit 1	Hypersensitivity, Autoimmunity, and Immunodeficiencies	Biology of cell development	<ul style="list-style-type: none"> Cell differentiation into different cell types and organization into specialized tissues; cell-ECM and cell-cell interactions; cell motility and migration; Embryonic development stages [fertilisation, post fertilisation, Implantation] Establishment of germ layers and their fate Immunology of pregnancy
Unit 2	Immune Responses to transplants and tumours	Animal Cell Culture	Shifted from 803
Unit 3	Immune response to infectious agents	Stem cells and Tissue Engineering	Shifted from 902
Unit 4	Experimental systems and advances in immunology	Advances in Animal Biotechnology	Shifted from 902 and inclusion of <ul style="list-style-type: none"> Cell line models in biomedical research <i>In vitro</i> testing (cytotoxicity) Animal models in biomedical research.

Molecular Biotechnology SBTS0803			
Course	Existing Title	Proposed Title	Change to be incorporated
Unit 1	Regulation of genome activity	Genomes and Genome Mapping	<ul style="list-style-type: none"> A brief overview of prokaryotic and eukaryotic genome organization; extra-chromosomal DNA: bacterial plasmids, mitochondria, and chloroplast Genome mapping: molecular markers; physical mapping methods (sequencing, RM, STS), cytogenetic techniques, somatic cell hybridization, radiation hybrid maps, in situ hybridization, comparative gene mapping. Methods of genome analysis: Polymorphisms in



Alinda

PRINCIPAL
ST. XAVIER'S COLLEGE
(AUTONOMOUS)
MUMBAI - 400 001.



SXC/PGDBT/2018-19

			<p>DNA sequence, Next Generation Sequencing technologies, Whole Genome Assembly challenges, Sequencing of large genomes</p> <ul style="list-style-type: none"> Genome sequencing projects: Human Genome Project, genome sequencing projects in microbes, plants, and animals, accessing and retrieving genome project information from the web.
Unit 2	DNA Vectors	Genome analysis	<ul style="list-style-type: none"> Comparative genomics: Identification and classification of organisms using molecular markers- 16S rRNA typing/sequencing, use of genomes to understand the evolution of eukaryotes, track emerging diseases and develop new drugs; determining gene location in a genome sequence Functional genomics - Transcriptome analysis for identification and functional annotation of a gene, Contig assembly, chromosome mapping and characterization of chromosomes, identification of functional genes in a genome, gene discovery through forward and reverse genetics Model organisms: <i>S. cerevisiae</i>, <i>C. elegans</i>, <i>D. melanogaster</i>, <i>M. musculus</i>, <i>D. rerio</i> Genomics and medicine.
Unit 3	Application of R.DNA technology	Tools for gene manipulation.	<p>Shifted from unit 2- Cloning tools:</p> <ul style="list-style-type: none"> Enzymes Vectors: Expression vectors, Vector cloning, making RNA probes, Tools for cloning and expression in eukaryotic systems PCR techniques Gene silencing and genome editing techniques: Gene silencing techniques; introduction of siRNA; siRNA technology; MicroRNA; construction of siRNA vectors; principles and application of gene silencing; gene knockdown; genome editing using enzymes.
Unit 4	Animal Cell Culture	Application of R.DNA technology	<p>Shifted from unit 3 and inclusion of topics from Unit 2</p> <ul style="list-style-type: none"> Plant engineering: abiotic and biotic stress tolerance, modification of nutrient content Synthesis of commercial products - Recombinant proteins, Endonucleases Chloroplast engineering Protein Engineering- rational and random





ST. XAVIER'S COLLEGE
(AUTONOMOUS)
5, Mahapalika Marg, Mumbai - 400 001,
INDIA.
☎ 2262 0661/65


SXC/PGDBT/2018-19

Advanced Techniques SBTS0804			
Course	Existing Title	Proposed Title	Change to be incorporated
Unit 1	Spectroscopy	Analytical techniques	The inclusion of X-Ray Crystallography: Principles, instrumentation, and application
Unit 2	Advances in Microscopy and X-Ray Crystallography	Advanced analytical techniques	<ul style="list-style-type: none"> Advanced Microscopy: Different versions of advanced microscopy, electron microscopy, and confocal microscopy Advances in Chromatography Biosensors in diagnostics, environment and industry Molecular Diagnostics: PCR and hybridisation
Unit 3	Gene amplification technique	Nanotechnology in medicine	Shifted from 1001
Unit 4	Advanced analytical techniques	Proteomics	<p>Aims, strategies, and challenges in proteomics; proteomics technologies: 2D-PAGE DIGE, isoelectric focusing, mass spectrometry (SELDI, iTrac, LC-MS), MALDI-TOF, proteome databases.</p> <p>Protein-protein and protein-DNA interactions; protein chips and functional proteomics; clinical and biomedical applications of proteomics;</p>

Semester III

Biostatistics & Bioinformatics SBTS0901			
Course	Existing Title	Proposed Title	Change to be incorporated
Unit 1	Introduction to Biostatistics	No change	
Unit 2	Applied Bio Statistics	No Change	
Unit 3	Databases and Sequence alignment		<p>Inclusion of</p> <ul style="list-style-type: none"> Introduction of Programming Languages in Bioinformatics
Unit 4	Protein Structure Visualization Prediction, genes, and genome analysis	Protein sequence and structure analysis	<ul style="list-style-type: none"> Protein secondary structures Protein tertiary structures Protein structure Visualization and property analysis Protein function




 PRINCIPAL
 ST. XAVIER'S COLLEGE
 (AUTONOMOUS)
 MUMBAI - 400 001.



ST. XAVIER'S COLLEGE
(AUTONOMOUS)
 5, Mahapalika Marg, Mumbai - 400 001,
 INDIA.
 ☎ 2262 0661/65

SXC/PGDBT/2018-19

Course		Drug Development SBTS0902	
Units	Existing Title	Proposed Title	Change to be incorporated
Unit 1	Human Embryogenesis and IVF	Drug Discovery	Shifted from 1001 unit1
Unit 2	Stem Cells and Tissue Engineering	Preclinical Aspects of Drug Development	<ul style="list-style-type: none"> Principles of pharmacokinetics and pharmacodynamics Principles of toxicology Experimental design for preclinical and PK/PD studies
Unit 3	Biopharmaceuticals	Considerations during Biopharmaceutical Manufacturing	Formulations of Biopharmaceuticals GMP for Biopharmaceuticals
Unit 4	Molecular Farming and Protein Engineering	Clinical Research and Regulatory affairs	<ul style="list-style-type: none"> Merging of unit 2 and 3 from 1001

Course	Bioprocess Technology SBTS0903 - No Change
--------	---

Course		Environmental and Food Biotechnology SBTS0904	
Units	Existing Title	Proposed Title	Change to be incorporated
Unit 1	Environmental Pollution and Management	Environmental Pollution and Bioremediation	Content changed to <ul style="list-style-type: none"> Environmental pollution: urban aspects (biowaste, e waste, solid waste) Environmental Monitoring: concepts, strategies, applications of nanotechnology Biofouling and biodeterioration: agents, protection methods Bioremediation: Biodegradation and biorecovery of natural and xenobiotic compounds Phytoremediation overview, microbially assisted phytoremediation, phytoremediation of saline soils, genetic strategies for advancing phytoremediation potential in plants. Heavy Metal Bioremediation- conventional and advanced methods Oil pollution remediation.

Abhishek

PRINCIPAL
ST. XAVIER'S COLLEGE
(AUTONOMOUS)
MUMBAI - 400 001.





ST. XAVIER'S COLLEGE
(AUTONOMOUS)
 5, Mahapalika Marg, Mumbai - 400 001,
 INDIA.
 ☎ 2262 0661/65

SXC/PGDBT/2018-19


Unit 1	Marine Pollution and Biodeterioration	Environmental sustainability	<ul style="list-style-type: none"> • Concept of sustainability, carbon footprint and credits • Biomass management • Sustainability in agriculture: Bio-pesticides, Bio-fertilizers and Integrated Pest management • Energy and Environment: Bioenergy • Metagenomics: concept, strategies, and applications in environmental biotechnology
Unit 2	Environmental Monitoring and Management	GM Crops and Nutraceuticals	<ul style="list-style-type: none"> • GM crops- national and global scenario (<i>Bt</i> based & others and fallacies associated) • GM based phytonutrients • Food security dilemma- GM food Vs Organic food • Nutraceuticals and Functional Foods: Nutraceuticals and Functional Foods- Definition, characteristic features, and classification; Sources (with examples e.g. microbes, plants, algae); Applications of nutraceuticals in human health and nutrition- health effects of commonly used nutraceuticals and functional foods (case studies), Safety and Regulatory guidelines
Unit 3	Safety, Ethics, and QA aspects in Biotechnology	No change	Inclusion of Clean Room Technology and ISO aspects

Semester IV

Semester 10			
SBTS1001- shifted to 902			
SBTS1002 – converted to SBTS1001			
Unit	Existing Title	Proposed Title	Change to be incorporated
Unit 1	Basic Concepts of Patenting	No change	The inclusion of -Permissible and non-permissible Biotechnology patenting in India, Patent reviews Searching and analysing Patents
Unit 2	Geographical Indications and Traditional Knowledge: Concepts and Case studies	Rights, Acts, GI, and Traditional Knowledge: Concepts and Case studies	Inclusion PVP from unit 3



Page


PRINCIPAL
ST. XAVIER'S COLLEGE
(AUTONOMOUS)
MUMBAI - 400 001.



ST. XAVIER'S COLLEGE
(AUTONOMOUS)
 5, Mahapalika Marg, Mumbai - 400 001,
 INDIA.
 ☎ 2262 0661/65

SXC/PGDBT/2018-19

Course	Business Proposal SBTS1001PR		
Units	Existing Title	Proposed Title	Change to be incorporated
IPR		Business Proposal	Weightage increased

Course	Research Project SBTS10PR		
Units	Existing Title	Proposed Title	Change to be incorporated
Research Project		No change	Duration and Weightage increased

Semester I, II, and III
Practical Courses- to be merged as one course per semester

Course	Existing Title	Proposed Title	Change to be incorporated
SBTS7PR	SBTS701-704PR	Techniques in Biotechnology and Scientific communication skills	<ol style="list-style-type: none"> Introduction to good laboratory practices Laboratory techniques and quality assurance <ul style="list-style-type: none"> Preparation of solutions and buffers Calibration of instruments: pHmeter, analytical balance, UV-spectrophotometer, colorimeter Calibration of apparatus used for measuring pipettes, auto pipettes and measuring cylinders Validation: Autoclave, Laminar air flow Introduction to principles of Quality assurance and Quality control Microbial techniques: Identification of microorganisms, Sterility testing Nucleic Acid extraction techniques: <ul style="list-style-type: none"> Extraction of Genomic DNA from Bacteria, Yeast, human samples (Cheek, Blood) and quantification of biomolecules using UV (nucleic acids and proteins) Isolation of RNA from yeast/ E. coli Immunological techniques: <ul style="list-style-type: none"> Isoagglutination titre study Single Radial Immunodiffusion Dot-ELISA/ Antibody/ antigen capture ELISA Western Blot Technique Techniques in Protein Chemistry: <ul style="list-style-type: none"> Protein Estimation using the following methods: <ul style="list-style-type: none"> ✓ Biuret assay ✓ Bradford's assay ✓ Folin-Lowry assay Protein Separation and Purification techniques:



Shinde
 PRINCIPAL
 ST. XAVIER'S COLLEGE
 (AUTONOMOUS)
 MUMBAI - 400 001.



ST. XAVIER'S COLLEGE
(AUTONOMOUS)
 5, Mahapalika Marg, Mumbai - 400 001,
 INDIA.
 ☎ 2262 0661/65

SXC/PGDBT/2018-19

			<ul style="list-style-type: none"> ✓ Polyacrylamide gel electrophoresis (native and SDS) ✓ Horizontal gel electrophoresis (Slide and Slab) ○ Protein gel staining techniques: ✓ Coomassie brilliant blue, Silver staining TCA and Ponceau staining ✓ Activity staining: LDH • Protein Purification techniques: <ul style="list-style-type: none"> ✓ Protein Precipitation ✓ Ion exchange Chromatography ✓ Gel filtration ✓ Affinity Chromatography ✓ Study of purified Immunoglobulins using SDS PAGE • Viscosity studies of proteins <p>7. Introduction to computational tools in biology:</p> <ul style="list-style-type: none"> ○ Retrieval of protein, nucleotide and protein structural data for analysis ○ Protein sequence analysis ○ Primary protein sequence analysis ○ Secondary sequence analysis ○ Tertiary structure analysis <p>8. Scientific communication:</p> <ul style="list-style-type: none"> • Gathering scientific data from various sources. • Written communication: Guide to clear writing, forms and styles of writing • Scientific publication writing • Oral communication variants • Concept of Plagiarism
8100PR	SBTS801-804PR	Biotechnology	<p>All previous course to be merged under one course 801PR course to be realigned as follows:</p> <p>I. Experimental aspects in Metabolism</p> <ol style="list-style-type: none"> 1. Study of Vitamins as Participants of Enzyme Reactions 2. Study of Biological oxidation – e.g.: NADH-dehydrogenase activity determination 3. Study of Krebs Cycle intermediates, enzymes, Glucose-6-phosphate dehydrogenase activity 4. Oxidative metabolism – ATP detection, ATPase activity determination 5. Nucleotide metabolism – Uric acid determination 6. Factors influencing/ affecting the intermediate metabolism in microbes – e.g.) alcohol 7. Plant metabolism study – <ol style="list-style-type: none"> a. Chloroplast separation



Shinde
 PRINCIPAL

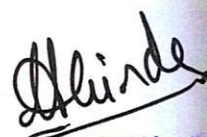
ST. XAVIER'S COLLEGE
 (AUTONOMOUS)
 MUMBAI - 400 001.



SXC/PGDBT/2018-19

			b. Pigment separation and quantification of pigments c. Proton uptake assays 8. Secondary metabolite study 9. Study of fatty acids Genome study: <ul style="list-style-type: none"> • Exploration of metabolic pathway databases e.g. KEGG, Reactome • Exploration of enzyme databases • DNA sequencing study – Nucleotide, Gene sequence databases • Gene/nucleotide sequence analysis- gene finding, motif analysis, intron-exon finder, Using Blast for nucleotide sequence analysis • Molecular biology experiments <ul style="list-style-type: none"> • Primer designing and validation – Primer validation • Study of in silico restriction digestion • Study of Cloning vectors • Exploration of genome databases – • Exploration of proteome databases
SBTS9PR	SBTS901-904PR		All previous course to be merged under one course I. BIOINFORMATICS <ul style="list-style-type: none"> • Study of databases – primary, secondary, special databases • Sequence annotations - • Sequence alignment and phylogenetic analysis • Protein sequence and structure analysis II. Exploring <i>in vitro</i> (cell line based) assays III. Research Methodology (Bioprocess and Environmental Biotechnology aspects to be explored for projects)
SBTS1001PR SBTS1002PR	SBTS1001PR SBTS1002PR SBTS10PR	Business Proposal and Research Project	IPR practical component is included in the theory




 PRINCIPAL
 ST. XAVIER'S COLLEGE
 (AUTONOMOUS)
 MUMBAI - 400 001.



ST. XAVIER'S COLLEGE
(AUTONOMOUS)
5, Mahapalika Marg, Mumbai - 400 001,
INDIA.
☎ 2262 0661/65

2017-2018



ST. XAVIER'S COLLEGE
(AUTONOMOUS)
5, Mahapalika Marg, Mumbai - 400 001,
INDIA.
☎ 2262 0661/65

PGDBT/BOS | 2017-18

POST GRADUATE DEPARTMENT OF BIOTECHNOLOGY
ST XAVIER'S COLLEGE - AUTONOMOUS, MUMBAI
BOARD OF STUDIES MEETING

Day and Date: Wednesday, 9th March 2018
Time: 3:00 PM

Venue: Department of Biotechnology

Agenda:

- To pass the minutes of the previous meeting
- To pass the revised syllabi of M Sc courses
- To recommend changes in the M. Sc syllabus for both years if required.
- To pass a resolution to adopt the changes made in the syllabus and evaluation system for all semesters where ever applicable.
- Any other matter

Members:

- **Chairperson: Head of the Department**
Dr. Karuna Gokarn
- **Department teachers:**
 1. Ms. Norine D'Souza
 2. Dr. Shiney Peter
- **University Representative: Head of University Department.**
Dr. Archana Rath, I/C, HOD, Department of Biotechnology
- **Subject Experts:**
 1. Dr (Ms.) Tara Menon, HOD,
Department of Biotechnology, SIES College
 2. Dr (Ms.) Sneha Panvalkar, HOD,
Department of Biotechnology, G N Khalsa College
 3. Dr (Ms.) Varsha Mane
Department of Biotechnology, University of Mumbai
- **Professional Experts:**
 1. Dr. Girish Mahajan ,
Vice President, Himedia Laboratories Pvt. Ltd.
 2. Dr. Taruna Madan Gupta,
Scientist D and Head, Innate Immunity, NIRRH, Mumbai
- **Student representatives:**
 1. Priyanka Subramani
 2. Tanvi Kaku

Signature

KR Gokarn

Norine D'Souza
9/3/18

Tara Menon
9/3/18

Priyanka Subramani
9/3/18

Tanvi Kaku
09/03/2018

Heinrich

PRINCIPAL
ST. XAVIER'S COLLEGE
(AUTONOMOUS)
MUMBAI - 400 001.





IXC/PGDBT/BOS

March 10, 2018

Board of studies

Minutes of the meeting

- The meeting was held on 9th March 2018 at 3:00 PM in the PG Department of Biotechnology, St. Xavier's College, Mumbai
- The following members attended the meeting:
 1. Chairperson: Dr. Karuna Gokam (Head of the Department)
 2. Department Teachers:
 - a. Ms. Norine D'souza
 - b. Dr. Shiney Peter
 3. Professional experts:
 - a. Dr. Tara Menon, Head, Dept of Biotechnology, SIES College, Mumbai
 4. Student representatives:
 - a. Tanvi Kaku (M.Sc- II)
 - b. Priyanka Subramani (M.Sc- II)
- At the outset, Dr. Karuna welcomed everyone and also informed about the unavailability of three BOS members due to unavoidable circumstances. Dr. Varsha, Dr. Girish and Dr. Taruna had send in their suggestions via email.
- Following this, Dr. Shiney Peter read the minutes of the meeting. The same was passed by the board members.
- As per the agenda of the meeting, Dr. Karuna introduced about the changes to be incorporated in the syllabus.
 - Ms. Norine D'Souza elaborated the need for reshuffling of topics in MSBTS701 and 704. The changes suggested were accepted by the members.
 - Dr. Shiney Peter explained the inclusion of DNA replication, repair and recombination unit in MSBTS703. Dr. Tara suggested that it can be included for a year as the topic is missing from the UG syllabus for the incoming batch of students.
 - Suggestions sent by Dr. Taruna were also deliberated upon and it was decided to include the topic on immune response to fungal infections along with bacterial and viral infections as a separate unit in MSBTS802.
 - The inclusion of practical component based on phytochemical extraction and characterisation was accepted by the members.
 - Student representatives Priyanka and Tanvi suggested the following :
 - Theory component of Bioinformatics should be reduced





ST. XAVIER'S COLLEGE
(AUTONOMOUS)
5, Mahapalika Marg, Mumbai - 400 001,
INDIA.
☎ 2262 0661/65


BAUC/PGDBT/BOS

March 10, 2018

- Inclusion of Metagenomics, protein docking and DNA sequencing tools in the practicals
- Inclusion of Biostatistics topics in Semester II instead of the existing Semester III and elaboration of experimental design theory.
- Inclusion of R programming in the syllabus.
- The suggestions were appreciated by the members, however since a lot of reshuffling will be needed to accommodate these suggestions, the matter will be deliberated and considered during the next revision.
- Dr. Tara also suggested to rename MSBTS 7.04 as Membrane biology. However considering the broad content of the paper including most of the cellular processes, it was decided to rename it as Cellular Processes.
- She also suggested that an introductory epigenetics course would be relevant and should be considered during next revision.
- Ms. Norine explained the proposed practical evaluation pattern changes. It was appreciated by the members. A detailed plan of execution will be sent to the members before incorporating the pattern.
- The question papers were scrutinised and accepted by the members.
- The resolution "The Subject Board in Biotechnology, St. Xavier's College, Autonomous, hereby approves the revised syllabi and practical evaluation pattern of the first year Master's Course of studies for the I and II semesters, which is being implemented from the academic year 2018-19" at the meeting held on 9th March 2018 in the Department of Biotechnology, St. Xavier's College, Mumbai" was passed by the Board members.



NAAC SSR Cycle 4 (2015-2020):
1_1_2_BoS Minutes - Biotechnology


PRINCIPAL
ST. XAVIER'S COLLEGE
(AUTONOMOUS)
MUMBAI - 400 001.



ST. XAVIER'S COLLEGE
(AUTONOMOUS)
5, Mahapalika Marg, Mumbai - 400 001,
INDIA.
☎ 2262 0661/65

PGDBT/BOS | 2017-18

POST GRADUATE DEPARTMENT OF BIOTECHNOLOGY
ST XAVIER'S COLLEGE - AUTONOMOUS, MUMBAI
RESOLUTION

"The Subject Board In Biotechnology, St. Xavier's College, Autonomous, hereby approves the revised syllabi of the first year Master's Course of studies for the I and II semesters, which is being implemented from the academic year 2018-19", at the meeting held on 9th March, 2018 in the Department of Biotechnology, St Xavier's College, Mumbai"

SUBJECT BOARD- DEPARTMENT OF BIOTECHNOLOGY

Members:

- **Chairperson: Head of the Department**
Dr. Karuna Gokarn
- **Department teachers:**
 1. Ms. Norine D'Souza
 2. Dr. Shiney Peter
- **University Representative: Head of University Department.**
Dr. Archana Rath, J.C., HOD, Department of Biotechnology
- **Subject Experts:**
 1. Dr (Ms.) Tara Menon, HOD,
Department of Biotechnology, SIES College
 2. Dr (Ms.) Sneha Panvalkar, HOD,
Department of Biotechnology, G N Khalsa College
 3. Dr (Ms.) Varsha Mane
Department of Biotechnology, University of Mumbai
- **Professional Experts:**
 1. Dr. Girish Mahajan ,
Vice President, Himedia Laboratories Pvt. Ltd.
 2. Dr. Taruna Madan Gupta,
Scientist D and Head, Innate Immunity, NIRRH, Mumbai
- **Student representatives:**
 1. Priyanka Subramani
 2. Tanvi Kaku

Signature

KR Gokarn
9/3/18

Nau
Shiney Peter
9/3/18

Archana Rath
27/3/18

Tara Menon
4.8.18.

Varsha Mane

Subramani
9/3/18

Tanvi Kaku
09/03/2018



NAAC SSR Cycle 4 (2015-2020):
1_1_2_BoS Minutes - Biotechnology

Alia de
PRINCIPAL
ST. XAVIER'S COLLEGE
(AUTONOMOUS)
MUMBAI - 400 001.



ST. XAVIER'S COLLEGE
(AUTONOMOUS)
5, Mahapalika Marg, Mumbai - 400 001,
INDIA.
☎ 2262 0661/65

PGDBT/BOS | 2017-18

POST GRADUATE DEPARTMENT OF BIOTECHNOLOGY

ST XAVIER'S COLLEGE - AUTONOMOUS, MUMBAI

RESOLUTION

"The Subject Board In Biotechnology, St. Xavier's College, Autonomous, hereby approves the evaluation methods and grids of the first year and second year Master's Course of studies for the I, II, III and IV semesters, which is being implemented from the academic year 2018-19", at the meeting held on 9th March, 2018 in the Department of Biotechnology, St Xavier's College, Mumbai"

SUBJECT BOARD- DEPARTMENT OF BIOTECHNOLOGY

Members:

- **Chairperson: Head of the Department**
Dr. Karuna Gokarn
- **Department teachers:**
 1. Ms. Norine D'Souza
 2. Dr. Shiney Peter
- **University Representative: Head of University Department.**
Dr. Archana Rath, ~~IC~~ HOD, Department of Biotechnology
- **Subject Experts:**
 1. Dr (Ms.) Tara Menon, HOD,
Department of Biotechnology, SIES College
 2. Dr (Ms.) Sneha Panvalkar, HOD,
Department of Biotechnology, G N Khalsa College
 3. Dr (Ms.) Varsha Mane
Department of Biotechnology, University of Mumbai
- **Professional Experts:**
 1. Dr. Girish Mahajan ,
Vice President, Himedia Laboratories Pvt. Ltd.
 2. Dr. Taruna Madan Gupta,
Scientist D and Head, Innate Immunity, NIRRH, Mumbai
- **Student representatives:**
 1. Priyanka Subramani
 2. Tanvi Kaku

Signature

K. Karuna
9/3/18

Norine
Shiney Peter
9/3/18

Archana
27/3/18

Tara Menon
9.3.18

Varsha Mane

Subramani
9/3/18

Kaku
09/03/2018

Principal

PRINCIPAL
ST. XAVIER'S COLLEGE
(AUTONOMOUS)
MUMBAI - 400 001.





ST. XAVIER'S COLLEGE
(AUTONOMOUS)
5, Mahapalika Marg, Mumbai - 400 001,
INDIA.
☎ 2262 0661/65

2016-2017



ST. XAVIER'S COLLEGE
(AUTONOMOUS)
5, Mahapalika Marg, Mumbai - 400 001,
INDIA.
☎ 2262 0661/65

PGDBT/BOS | 2016-17

POST GRADUATE DEPARTMENT OF BIOTECHNOLOGY
ST XAVIER'S COLLEGE - AUTONOMOUS, MUMBAI
BOARD OF STUDIES MEETING

Day and Date: Wednesday, 1st March 2017
Time: 2:30 PM

Venue: Department of Biotechnology

Agenda:

- To pass the minutes of the previous meeting
- To pass the revised syllabi of M Sc courses
- Any other matter

Members:

- Chairperson: Head of the Department

Dr (Ms.) Shiney Peter

Signature

Shiney Peter
1/3/17

- Department teachers:

1. Ms. Norine D'Souza *Nou*
2. Dr. Biswaprasun Chatterjee *BSC*

- University Representative: Head of University Department.

Dr. Archana Rath, I/C, HOD, Department of Biotechnology

- Subject Experts:

1. Dr (Ms.) Tara Menon, HOD, *Tara Menon* 1/3/17
Department of Biotechnology, SIES College
2. Dr (Ms.) Sneha Panvalkar, HOD, *Sneha Panvalkar* 1/3/17
Department of Biotechnology, G N Khalsa College
3. Dr (Ms.) Varsha Mane
Department of Biotechnology, University of Mumbai

- Professional Experts:

1. Dr. Girish Mahajan,
Vice President, Himedia Laboratories Pvt. Ltd.
2. Dr. Taruna Madan Gupta,
Scientist D and Head, Innate Immunity, NIRRH, Mumbai

Taruna Madan
1/3/2017

- Student representatives:

1. Ketaki Bachal, Class Representative, MSc-II *Ketaki*
2. Kris Silveira, Class Representative, MSc-I *Kris Silveira*



NAAC SSR Cycle 4 (2015-2020):
1_1_2_BoS Minutes - Biotechnology

Shinde
PRINCIPAL
ST. XAVIER'S COLLEGE
(AUTONOMOUS)
MUMBAI - 400 001.



ST. XAVIER'S COLLEGE
(AUTONOMOUS)
5, Mahapalika Marg, Mumbai - 400 001,
INDIA.
☎ 2262 0661/65

SXC/PGDBT/BOS | 2017

BOARD OF STUDIES

Minutes of the meeting

- 1. The meeting was held on 1st March 2017 at 2:30 PM in the Department of Biotechnology, St. Xavier's College, Mumbai
 - 2. The following members attended the meeting:
 1. Chairperson: Dr. Shiney Peter (Head of the Department)
 2. Department Teachers:
 - a. Ms. Norine D'souza
 - b. Dr. Biswa Prasun Chatterji
 3. University representative: Dr. Archana Rath, I/C Head, Department of Biotechnology
 4. Professional experts:
 - a. Dr. Taruna Madan Gupta, Scientist D and Head, Innate Immunity, NIRRH, Mumbai.
 - b. Dr. Tara Menon, Head, Dept of Biotechnology, SIES college, Mumbai
 - c. Dr. Sneha Panvalkar, Head, Dept of Biotechnology, Khalsa College
 5. Student representatives:
 - a. Ketaki Bachal (MSc- II)
 - b. Kris Silveria (M.Sc- I)
 - 3. At the outset, Dr. Shiney Peter read the minutes of the meeting. The same was passed by the board members.
 - 4. As per the agenda of the meeting Dr. Shiney explained the reasons for inclusion of changes in the course content to the members.
 - 5. Dr B P Chatterji explained about the changes in courses from Semester I and II
 - 6. Ms. Norine D'Souza explained about the changes in courses from Sem II and IV
- Excerpts of the discussion are as follows:

1. Syllabi Changes : Board members discussed and suggested the following changes :

- Semester 1 1.04 Unit 4
 - i. It was observed by the board members that the topics might be a repetition of UG final year course work. It was decided to elaborate on apoptosis aspects in that unit.
 - ii. The board members discussed the practical content of MSBTS1.04PR
 - iii. The recommended changes were accepted by the board members
 - iv. Semester 2 – The recommended changes were accepted by the board members
- Semester 3 – following changes were suggested.



NAAC SSR Cycle 4 (2015-2020):
1_1_2_BoS Minutes - Biotechnology

Shinde
PRINCIPAL
ST. XAVIER'S COLLEGE
(AUTONOMOUS)
MUMBAI - 400 001.



ST. XAVIER'S COLLEGE
(AUTONOMOUS)
5, Mahapalika Marg, Mumbai - 400 001,
INDIA.
☎ 2262 0661/65

SXC/PGDBT/BOS | 2017

- i. In course MSBTS 3.04 unit 1 inclusion of phytoremediation - case studies
- ii. Exclusion of integrated pest management as it is included in the Undergraduate syllabi (BSc Biotechnology)
- iii. In course MSBTS 3.04 unit 2 inclusion of case studies in oil spillage and introduction to Mangroves
- iv. In unit 3: inclusion of carbon foot printing, subtitled the aspects under sustainable management, biomass and biogas and exclusion of white biotechnology
- v. Inclusion of Validation in unit 4

In semester 4, Student rep Ketaki suggested inclusion of IP management in business of biotechnology,

The proposed changes were circulated prior to the meeting and suggestions were sought from members who were unable to attend.

Evaluation grids for CIA practical's and Internal Project was discussed and passed.

Duration of ESE paper was increased from 2 hrs to 2.5 hours.

The members suggested the resources from ICT, BARC, NIO and IOB Bangalore for support in execution of the revised content and technical support for content strengthening.

Student rep, Ketaki Bachal suggested having laboratory based and non-laboratory based specialization in the 4th semester for better job prospects. Some of the areas suggested were Intellectual property rights, clinical research, management and entrepreneurship, research etc. The idea was debated and could not be accepted due to the evaluation criteria for some specific fields. Further it was suggested to take as future prospects.

The changes in the syllabus, evaluation grid and the change in the exam time were agreed by the board of studies members.

The resolution "The Subject Board in Biotechnology, St. Xavier's College, Autonomous, hereby approves the revised syllabi of the first and second year

Master's Course of studies for the I, II, III and IV semesters, which is being implemented from the academic year 2017-18" at the meeting held on 1st March 2017 in the Department of Biotechnology, St. Xavier's College, Mumbai" was passed by the Board members.





ST. XAVIER'S COLLEGE
(AUTONOMOUS)
5, Mahapalika Marg, Mumbai - 400 001,
INDIA.
☎ 2262 0661/65

PGDBT/BOS | 2016-17

POST GRADUATE DEPARTMENT OF BIOTECHNOLOGY

ST XAVIER'S COLLEGE – AUTONOMOUS, MUMBAI

RESOLUTION

"The Subject Board In Biotechnology, St. Xavier's College, Autonomous, hereby approves the revised syllabi of the first and second year Master's Course of studies for the I, II, III and IV semesters, which is being implemented from the academic year 2017-18", at the meeting held on 1st March, 2017 in the Department of Biotechnology, St Xavier's College, Mumbai"

SUBJECT BOARD- DEPARTMENT OF BIOTECHNOLOGY

Signature

- Chairperson: Head of the Department

Dr (Ms.) Shiney Peter

Shiney Peter
1/3/17

- Department teachers:

1. Ms. Norine D'Souza

Norine

2. Dr. Biswaprasun Chatterjee

Bm

- University Representative: Head of University Department.

Dr. Archana Rath, I/C, HOD, Department of Biotechnology

- Subject Experts:

1. Dr (Ms.) Tara Menon, HOD,
Department of Biotechnology, SIES College

Tara Menon
1/3/17

2. Dr (Ms.) Sneha Panvalkar, HOD,
Department of Biotechnology, G N Khalsa College

S. Panvalkar
1/3/2017

3. Dr (Ms.) Varsha Mane
Department of Biotechnology, University of Mumbai

- Professional Experts:

1. Dr. Girish Mahajan,
Vice President, Himedia Laboratories Pvt. Ltd.

2. Dr. Taruna Madan Gupta,
Scientist D and Head, Innate Immunity, NIRRH, Mumbai

Taruna Madan
1/3/2017

- Student representatives:

1. Ketaki Bachal, Class Representative, MSc-II

Ketaki

2. Kris Silveira, Class Representative, MSc-I

Kris

Shinde

PRINCIPAL
ST. XAVIER'S COLLEGE
(AUTONOMOUS)
MUMBAI - 400 001.





ST. XAVIER'S COLLEGE
(AUTONOMOUS)
5, Mahapalika Marg, Mumbai - 400 001,
INDIA.
☎ 2262 0661/65

2015-2016



ST. XAVIER'S COLLEGE
(AUTONOMOUS)
5, Mahapalika Marg, Mumbai - 400 001,
INDIA.
☎ 2262 0661/65

PGDBT/BOS | 2014-15

POST GRADUATE DEPARTMENT OF BIOTECHNOLOGY

ST XAVIER'S COLLEGE - AUTONOMOUS, MUMBAI

BOARD OF STUDIES MEETING

Day and Date: Thursday, 28th January 2016

Time: 2:00 PM

Venue: Department of Biotechnology

Agenda:

- To pass the minutes of the previous meeting
- To discuss the revised course content of M Sc courses
- Any other matter

Members:

- Chairperson: Head of the Department

Dr (Ms.) Vivien Amonkar *Amonkar*

- Department teachers:

1. Ms. Norine D'Souza *Norine*

2. Dr. Shiney M Peter *Shiney*

- University Representative: Head of University Department.

Dr. Bhupendra Pushkar, I/C, HOD, Department of Biotechnology

- Absent

- Subject Experts:

1. Dr (Ms.) Tara Menon, HOD,
Department of Biotechnology, SIES College *28/1/16*

2. Dr (Ms.) Sneha Panvalkar, HOD,
Department of Biotechnology, G N Khalsa College *Sneha Panvalkar 28/1/16*

3. Dr (Ms.) Varsha Mane
Department of Biotechnology, University of Mumbai

- Excused

- Professional Experts:

1. Dr. Girish Mahajan, Asst Director,
Prokaryote and Marine Technology, Piramal Enterprises Ltd *28/01/2016*

2. Dr. Taruna Madan Gupta,
Scientist D and Head, Innate Immunity, NIRRH, Mumbai

- Absent

- Student representatives:

1. Debaipsa Bhattacharya, Class Representative, MSc-II

2. Ketaki Bachal, Class Representative, MSc-I *Ketaki*



NAAC SSR Cycle 4 (2015-2020):
1_1_2_BoS Minutes - Biotechnology

Principal
PRINCIPAL
ST. XAVIER'S COLLEGE
(AUTONOMOUS)
MUMBAI - 400 001.



PGDBT/2015-16

BOARD OF STUDIES

Minutes of the meeting

- The meeting was held on 28th January 2016 at 2:00 PM in the Department of Biotechnology, St. Xavier's College, Mumbai
- The following members attended the meeting:
 1. Chairperson: Dr.(Ms) Vivien Amonkar (Head of the Department)
 2. Department Teachers:
 - a. Dr. Shiney Peter
 - b. Ms. Norine D'souza
 3. Subject Experts:
 - a. Dr. Tara Menon ,HOD, Dept. of Biotechnology, SIES college, Mumbai
 - b. Dr. Sneha Panwalkar, HOD, Dept. of Biotechnology, Khalsa college, Mumbai
 4. Professional experts:
 - a. Dr. Girish Mahajan, Asst Director, Prokaryote and Marine Technology, Piramal Enterprises Ltd, Mumbai
 5. Student representatives:
 - a. Ketaki Bachal (MSc- I)
- At the outset, Dr. Vivien Amonkar read the minutes of the meeting held on 13th March, 2015.
- Dr. Girish Mahajan had a query about the industry academia collaboration prospects.
- Dr. Amonkar briefed the board about the Novozyme Voice for BT activity and also mentioned about the apprehensions prevailing in the industry about such collaborations.
- Dr. Girish Mahajan suggests developing a testing lab for industrial needs as a mode of collaboration.
- The minutes were passed without any further deliberations.
 - Passed by Dr. Tara Menon
 - Seconded by Dr. Girish Mahajan.
- As per the agenda of the meeting, the revision in the MSc course content was discussed.
- Semester I:
 - a. MS.BTS.1.01





ST. XAVIER'S COLLEGE

(AUTONOMOUS)

5, Mahapalika Marg, Mumbai - 400 001,
INDIA.

☎ 2262 0661/65

PGDBT/2015-16

- i. Unit 4: Addition of neuromuscular junction and muscle contraction in the topic.
- b. MS.BTS.1.02
- i. Unit 4 : Inclusion of Autoimmune diseases
- c. MS.BTS.1.03

	MS.BTS.1.03	MS.BTS.1.03
	Existing	Change to be incorporated
Unit 1	Genomes : Ant & Seq Assembly	No change
Unit 2	Transcription Initiation	Mapping of Genomes
Unit 3	Synthesis & Processing of RNA	Transcription in prokaryotes and eukaryotes
Unit 4	Regulation of Genome activity	Translation and Post Translational modifications

d. MS.BTS.1.04

i. Unit 1:

- Shifting Lipoproteins – structure, association with proteins and function, Types of Lipoproteins (Membrane and Plasma), Lipoprotein Metabolism, role of Lipoproteins in diseases to semester 2
- Addition of solubilisation of the membrane by using different detergents and Liposome structure and their uses in drug targeting in unit 1.

ii. Unit 2:

- Inclusion of intracellular transport – moving proteins into membranes and organelles in Membrane transport

e. MS.BTS.1.01PR

- Shifting of Introduction to microbial techniques to 1.02PR

f. MS.BTS.1.02PR

Title to be incorporated as **Basic microbiological and molecular biology techniques**

- Inclusion of Identification of organisms
- Sterility Testing
- Extraction of Genomic DNA Extraction from Bacteria
- Extraction of Genomic DNA Extraction from Human samples (cheek cells, blood)





ST. XAVIER'S COLLEGE

(AUTONOMOUS)

5, Mahapalika Marg, Mumbai - 400 001,
INDIA.

☎ 2262 0661/65

PGDBT/2015-16

- Quantification of biomolecules using UV (nucleic acids and proteins)
 - g. MS.BTS.1.03PR**
 - Shifting of UV quantification of proteins to 1.02PR
 - Exclusion of paper electrophoresis and inclusion of horizontal agarose electrophoresis.
 - Inclusion of purification of Immunoglobulins and its study using SDS PAGE
 - h. MS.BTS.1.04PR**
 - i. Title to be incorporated as Basic Immunological tools
 - Isoagglutination titre study
 - Single Radial Immunodiffusion
 - DOT-ELISA
 - Antibody/antigen capture ELISA
- Semester II
 - a. MS.BTS.2.01**
 - Inclusion of Lipoproteins – structure, association with proteins and function, Types of Lipoproteins (Membrane and Plasma), Lipoprotein Metabolism, role of Lipoproteins in diseases.
 - Exclusion of somatic embryogenesis from unit 4
 - b. MS.BTS.2.02**
 - Shifting of autoimmunity from unit 1 to MS.BTS.1.02- unit 4
 - Shifting of oncogenes and cancer induction from unit 3 to 2.03 unit 1
 - c. MS.BTS.2.03:** Title to be changed to Mol biology & Animal cell culture

	MS.2.03	MS.2.03
	Existing	Changes to be incorporated
Unit 1	Translation in Eukaryotes	Regulation of Genome Activity Addition: Cancer genetics
Unit 2	Mapping of Genomes	DNA Vectors
Unit 3	DNA Vectors	App. Of rDNA technology
Unit 4	App. Of rDNA technology	Animal cell culture.





ST. XAVIER'S COLLEGE

(AUTONOMOUS)

5, Mahapalika Marg, Mumbai - 400 001,
INDIA.

☎ 2262 0661/65

PGDBT/2015-16

d. **MS.BTS.2.01PR** : Biochemical techniques and assays

- Exclusion of uric acid estimation , proton uptake and phosphorus estimation from nucleic acid
- Shifting of Plant tissue culture to 2.03PR and Bioinformatics to 2.04PR
- Addition of Estimation of Cholesterol and phosphorus from serum
- Addition of Vitamin B12 bioassay and Invertase assay

e. **MS.BTS.2.02PR**: Clinical immunology

- Shifting of ELISA to 1.04PR, Flow cytometry and Western Blot to 2.04PR and lymphotoxicity to 3.02PR
- Title to be changed to Molecular Biology and all practicals from 2.03PR to be included.
- Addition of glycerol stock preparation

f. **MS.BTS.2.03PR**: Molecular Biology

- Title of previous to be changed to **Tissue culture**
- Inclusion of Plant tissue culture methods from previous 2.01PR Animal cell culture methods from 3.02PR except cytotoxicity.

g. **MS.BTS.2.04PR**

- Addition of Flow cytometry and Western Blot
- Inclusion of bioinformatics component from 2.01PR and 2.02PR

• **Semester III**

a. **MS.BTS.3.01**

- Inclusion of ANOVA in unit 2

b. **MS.BTS.3.02**

- **Change of Title: Applications of biotechnology**
- Exclusion of unit 1 : animal cell culture
- Inclusion of Molecular farming and Protein Engineering as Unit 4:
 - Structural and functional changes in proteins
 - Chloroplast engineering
 - Edible vaccines

c. **MS.BTS.3.02PR Animal cell culture**

- Exclusion of basic animal cell culture techniques and shifting to 2.03PR
- Inclusion of Lymphotoxicity and cytotoxicity testing



[Signature]

PRINCIPAL
ST. XAVIER'S COLLEGE
(AUTONOMOUS)
MUMBAI - 400 001.



ST. XAVIER'S COLLEGE

(AUTONOMOUS)

5, Mahapalika Marg, Mumbai - 400 001,
INDIA.

☎ 2262 0661/65

PGDBT/2015-16

d. MS.BTS.3.03PR

i. Exclusion of the following:

- Alcohol production from the yeast *Saccharomyces cerevisiae* and alcohol estimation by dichromate method
- Invertase production from the yeast *Saccharomyces cerevisiae* and its purification
- Xanthan gum production and purification from *Xanthomonas campestris*
- Vit B₁₂ bioassay
- Solid state fermentation

ii. Inclusion of Process development (upstream and downstream) –eg) Alcohol production

e. MS.BTS.3.04PR

- Exclusion of biocompost analysis
- Inclusion of Project based on environmental biotechnology.
- Dr. Tara Menon suggested that basic plant tissue culture practicals as well as theory should be changed to applications of tissue culture in metabolic engineering as the existing practical component and few topics in the theory would be a repetition from Final year B. Sc course work for Mumbai university students.
- Dr. Girish Mahajan suggested the inclusion of endotoxin testing assays as part of sterility testing.
- Practical evaluation pattern for Semester I and II was discussed.
- **Suggestions from the members:**
 - Semester I
 - Major experiment – 1 – Electrophoresis
 - Minor experiment – 2- Biochemistry / Immunology and Bioinformatics
 - Quiz and Viva
 - Semester II
 - Major experiment – 1 – Molecular Biology
 - Minor experiment – 2- Biochemistry and Bioinformatics
 - Quiz and Viva
- Student Representative Ketaki B, suggested about incorporating project based Continuous Internal assessment for practicals. However the committee explained the lack of feasibility for the same.
- It was decided to incorporate the suggestions into the core syllabus and meet within a month to pass the same.





ST. XAVIER'S COLLEGE

(AUTONOMOUS)

5, Mahapalika Marg, Mumbai - 400 001,
INDIA.

☎ 2262 0661/65

PGDBT/BOS | 2015-16

POST GRADUATE DEPARTMENT OF BIOTECHNOLOGY

ST XAVIER'S COLLEGE – AUTONOMOUS, MUMBAI

BOARD OF STUDIES MEETING

Day and Date: Saturday, 19th March 2016

Time: 3:30 PM

Venue: Department of Biotechnology

Agenda:

- To pass the minutes of the previous meeting
- To pass the revised course content of M Sc courses
- Any other matter

Members:

- Chairperson: Head of the Department

Dr (Ms.) Vivien Amonkar *Amonkar*

- Department teachers:

1. Ms. Norine D'Souza *Norine*

2. Dr. Shiney M Peter *Shiney*

- University Representative: Head of University Department.

Dr. Bhupendra Pushkar, I/C, HOD, Department of Biotechnology —

- Subject Experts:

1. Dr (Ms.) Tara Menon, HOD,
Department of Biotechnology, SIES College *Tara Menon 19/3/16*

2. Dr (Ms.) Sneha Panvalkar, HOD,
Department of Biotechnology, G N Khalsa College *S. Panvalkar*

3. Dr (Ms.) Varsha Mane
Department of Biotechnology, University of Mumbai —

- Professional Experts:

1. Dr. Girish Mahajan, Asst Director,
Prokaryote and Marine Technology, Piramal Enterprises Ltd —

2. Dr. Taruna Madan Gupta,
Scientist D and Head, Innate Immunity, NIRRH, Mumbai —

- Student representatives:

1. Debaipsa Bhattacharya, Class Representative, MSc-II —

2. Ketaki Bachal, Class Representative, MSc-I *Bachal* —

Signature



NAAC SSR Cycle 4 (2015-2020):

1_1_2_BoS Minutes - Biotechnology

Shinde

PRINCIPAL
ST. XAVIER'S COLLEGE
(AUTONOMOUS)
MUMBAI - 400 001.



PGDBT/2015-16

BOARD OF STUDIES

Minutes of the meeting

- The meeting was held on 19th March 2016 at 3:30 PM in the Department of Biotechnology, St. Xavier's College, Mumbai
- The following members attended the meeting:
 1. Chairperson: Dr.(Ms) Vivien Amonkar (Head of the Department)
 2. Department Teachers:
 - a. Dr. Shiney Peter
 - b. Ms. Norine D'souza
 3. Subject Experts:
 - a. Dr. Tara Menon ,HOD, Dept. of Biotechnology, SIES college, Mumbai
 - b. Dr. Sneha Panwalkar, HOD, Dept. of Biotechnology, Khalsa college, Mumbai
 4. Student representatives:
 - a. Ketaki Bachal (MSc- I)
- At the outset, Dr. Vivien Amonkar read the minutes of the meeting held on 28th January, 2016.
- The minutes were passed without any deliberations.
 - Passed by Dr. Tara Menon
 - Seconded by Dr. Sneha Panwalkar.
- The course content changes as discussed in the meeting held on 28th January 2016 was incorporated in the syllabus and send to all board members prior for suggestions. Feedback was obtained from few members who wanted to excuse themselves from the meeting and these suggestions were incorporated.
- Dr. Taruna Madan, Dr. Varsha Mane and Dr. Girish Mahajan had excused themselves from the meeting.
- The resolution ,“The Subject Board In Biotechnology, St. Xavier's College, Autonomous, hereby approves the revised syllabi of the first and second year Master's Course of studies for the I, II, and III semesters, which is being implemented from the academic year 2016-17”, at the meeting held on 19th March, 2016 in the Department of Biotechnology, St Xavier's College, Mumbai”
- The resolution was proposed by Dr. Sneha Panwalkar and seconded by Dr. Tara Menon.





ST. XAVIER'S COLLEGE
(AUTONOMOUS)
5, Mahapalika Marg, Mumbai - 400 001,
INDIA.
☎ 2262 0661/65

PGDBT/BOS | 2015-16

POST GRADUATE DEPARTMENT OF BIOTECHNOLOGY

ST XAVIER'S COLLEGE - AUTONOMOUS, MUMBAI

RESOLUTION

"The Subject Board In Biotechnology, St. Xavier's College, Autonomous, hereby approves the revised syllabi of the first and second year Master's Course of studies for the I, II, and III semesters, which is being implemented from the academic year 2016-17", at the meeting held on 19th March, 2016 in the Department of Biotechnology, St Xavier's College, Mumbai"

SUBJECT BOARD- DEPARTMENT OF BIOTECHNOLOGY

Members:

- Chairperson: Head of the Department

Dr (Ms.) Vivien Amonkar *Amonkar*

- Department teachers:

1. Ms. Norine D'Souza
2. Dr. Shiney M Peter

Norine D'Souza
Shiney M Peter

- University Representative: Head of University Department.

Dr. Bhupendra Pushkar, I/C, HOD, Department of Biotechnology —

- Subject Experts:

1. Dr (Ms.) Tara Menon, HOD,
Department of Biotechnology, SIES College
2. Dr (Ms.) Sneha Panvalkar, HOD,
Department of Biotechnology, G N Khalsa College
3. Dr (Ms.) Varsha Mane
Department of Biotechnology, University of Mumbai —

Tara Menon 19/3/16

S. Panvalkar

- Professional Experts:

1. Dr. Girish Mahajan, Asst Director,
Prokaryote and Marine Technology, Piramal Enterprises Ltd —
2. Dr. Taruna Madan Gupta,
Scientist D and Head, Innate Immunity, NIRRH, Mumbai —

- Student representatives:

- Debaipisa Bhattacharya, Class Representative, MSc-II —
- Ketaki Bachal, Class Representative, MSc-I *Bachal*

Signature



NAAC SSR Cycle 4 (2015-2020):
1_1_2_BoS Minutes - Biotechnology

Shinde
PRINCIPAL
ST. XAVIER'S COLLEGE
(AUTONOMOUS)
MUMBAI - 400 001.



ST. XAVIER'S COLLEGE
(AUTONOMOUS)
5, Mahapalika Marg, Mumbai - 400 001,
INDIA.
☎ 2262 0661/65

2014-2015



ST. XAVIER'S COLLEGE
(AUTONOMOUS)
5, Mahapalika Marg, Mumbai - 400 001,
INDIA.
☎ 2262 0661/65

PGDBT/BOS | 2014-15

POST GRADUATE DEPARTMENT OF BIOTECHNOLOGY
ST XAVIER'S COLLEGE – AUTONOMOUS, MUMBAI
BOARD OF STUDIES MEETING

Day and Date: Friday, 13th March 2015
Time: 2:00 PM

Venue: Department of Biotechnology

Agenda:

- To pass the minutes of the previous meeting
- To pass the revised course content of M Sc courses
- Any other matter

Members:

- Chairperson: Head of the Department

Dr (Ms.) Vivien Amonkar

- Department teachers:

1. Ms. Norine D'Souza
2. Dr. Shiney M Peter

- University Representative: Head of University Department.
Dr. Bhupendra Pushkar, I/C, HOD, Department of Biotechnology

- Subject Experts:

1. Dr (Ms.) Tara Menon, HOD,
Department of Biotechnology, SIES College
2. Dr (Ms.) Sneha Panvalkar, HOD,
Department of Biotechnology, G N Khalsa College
3. Dr (Ms.) Varsha Mane
Department of Biotechnology, University of Mumbai

- Professional Experts:

1. Dr. Girish Mahajan, Asst Director,
Prokaryote and Marine Technology, Piramal Enterprises Ltd
2. Dr. Taruna Madan Gupta,
Scientist D and Head, Innate Immunity, NIRRH, Mumbai

- Student representatives:

1. Trinkle Kothari, Class Representative, MSc-II
2. Debaipsa Bhattacharya, Class Representative, MSc-I

Signature

Amonkar

*Nau
Shingate*

B.K. Pushkar

Girish Mahajan

Taruna Madan

- Absent



NAAC SSR Cycle 4 (2015-2020):
1_1_2_BoS Minutes - Biotechnology

Principle
PRINCIPAL
ST. XAVIER'S COLLEGE
(AUTONOMOUS)
MUMBAI - 400 001.



ST. XAVIER'S COLLEGE
(AUTONOMOUS)
5, Mahapalika Marg, Mumbai - 400 001,
INDIA.
☎ 2262 0661/65

PGDBT/2014-15


BOARD OF STUDIES

Minutes of the meeting

- The meeting was held on 13th March 2015 at 2:00 PM in the Department of Biotechnology, St. Xavier's College, Mumbai
- The following members attended the meeting:
 1. Chairperson: Dr.(Ms) Vivien Amonkar (Head of the Department)
 2. Department Teachers:
 - a. Dr. Shiney Peter
 - b. Ms. Norine D'souza
 3. University representative: Dr.Bhupendra Pushkar, I/C Head, Department of Biotechnology
 4. Professional experts:
 - a. Dr. Girish Mahajan, Asst Director, Prokaryote and Marine Technology, Piramal Enterprises Ltd, Mumbai
 - b. Dr. Taruna Madan Gupta, Scientist D and Head, Innate Immunity, NIRRH, Mumbai.
 5. Student representatives:
 - a. Trinkle Kothari (MSc- II)
- At the outset, Dr. Vivien Amonkar read the minutes of the meeting held on 25th September, 2014. It was passed without any deliberations.
 - Passed by Dr. Taruna Madan
 - Seconded by Dr. Girish Mahajan.
- Dr. Vivien Amonkar briefed about the existing autonomous system syllabus to the board members.
- As per the agenda of the meeting, Dr. Amonkar explained the changes in the course content to the members.



NAAC SSR Cycle 4 (2015-2020):
1_1_2_BoS Minutes - Biotechnology


PRINCIPAL
ST. XAVIER'S COLLEGE
(AUTONOMOUS)
MUMBAI - 400 001.



PGDBT/2014-15

- Semester I and II shuffling of units from MS.BTS.1.03 to MS.BTS.2.03 and vice versa

	MS.BTS.1.03	MS.BTS.1.03
	Existing	Change to be incorporated
Unit 1	Genomes : Ant & Seq Assembly	Genomes : Ant & Seq Assembly
Unit 2	Mapping of Genomes	Transcription Initiation
Unit 3	Transcription Initiation	Synthesis & Processing of RNA
Unit 4	Synthesis & Processing of RNA	Regulation of Genome activity
	MS.2.03	MS.2.03
Unit 1	Translation in Eukaryotes	Translation in Eukaryotes
Unit 2	Regulation of Genome Activity	Mapping of Genomes
Unit 3	DNA Vectors	DNA Vectors
Unit 4	App. Of rDNA technology	App. Of rDNA technology

- Inclusion of two experiments in MS.BTS.2.01PR. These experiments were a part of the existing syllabus but were not documented in the list of practicals.
 - Estimation of Creatinine from Serum
 - Estimation of Urea from Serum
- Deletion of two experiments from MS.BTS.2.01PR and one from MS.BTS.2.02PR
 - Estimation of Free fatty acids
 - Protoplast isolation
 - Separation of Neutrophils and study of phagocytosis
- Content change in MS.BTS.3.02 Unit 4
 - Title change from Therapeutic products based on cell culture to Therapeutic proteins.
 - Inclusion of pharmacodynamics and pharmacokinetic studies of the therapeutic products along with production methodology
 - Exclusion of two products- Human growth hormone and G/GM-CSF.
- Inclusion of 'Permissible and non permissible biotech patenting in India' as a topic in Unit 4 of MS. BTS.3.04





ST. XAVIER'S COLLEGE
(AUTONOMOUS)
5, Mahapalika Marg, Mumbai - 400 001,
INDIA.
☎ 2262 0661/65

PGDBT/2014-15

- Exclusion of two experiments from MS. BTS.3.03PR
 - Dextran production
 - Sterility testing of pharmaceutical products.
- The title of MS.BTS.3.02 Unit 4 was finalised as Biopharmaceuticals as per the email suggestion of Dr. Tara Menon. (The proposed changes were circulated prior to the meeting and suggestions were sought from members who were unable to attend)
- Dr. Mahajan suggested to incorporate Biosimilars in unit 4 of MS.BTS.3.02
- Dr. Taruna suggested the change of title of subtopic Therapeutic proteins of MS.BTS.3.02 unit 4 to Therapeutic peptides.
- The changes mentioned above were accepted unanimously.
- The members appreciated the research methodology and Entrepreneurship module of Semester 4.
 - Dr. Pushkar suggested encouragement of Industrial collaboration for market survey in the same module.
- Dr. Mahajan suggested encouraging small industry academia partnership for research projects.
- The resolution, "The Subject Board in Biotechnology, St. Xavier's College, Autonomous, hereby approves the revised syllabi of the first and second year Master's Course of studies for the I, II, III and IV semesters, which is being implemented from the academic year 2015-16" at the meeting held on 13th March 2015 in the Department of Biotechnology, St. Xavier's College, Mumbai.
- The resolution was proposed by Dr. Mahajan and seconded by Dr. Pushkar.



NAAC SSR Cycle 4 (2015-2020):
1_1_2_BoS Minutes - Biotechnology


PRINCIPAL

ST. XAVIER'S COLLEGE
(AUTONOMOUS)
MUMBAI - 400 001.



ST. XAVIER'S COLLEGE
(AUTONOMOUS)
5, Mahapalika Marg, Mumbai - 400 001,
INDIA.
☎ 2262 0661/65

PGDBT/BOS | 2014-15

POST GRADUATE DEPARTMENT OF BIOTECHNOLOGY
ST XAVIER'S COLLEGE - AUTONOMOUS, MUMBAI

RESOLUTION

"The Subject Board In Biotechnology, St. Xavier's College, Autonomous, hereby approves the revised syllabi of the first and second year Master's Course of studies for the I, II, III and IV semesters, which is being implemented from the academic year 2015-16", at the meeting held on 13th March, 2015 in the Department of Biotechnology, St Xavier's College, Mumbai"

SUBJECT BOARD- DEPARTMENT OF BIOTECHNOLOGY

Members:

- Chairperson: Head of the Department

Dr (Ms.) Vivien Amonkar

Signature

Amonkar

- Department teachers:

1. Ms. Norine D'Souza
2. Dr. Shiney M Peter

Norine D'Souza
Shiney M Peter

- University Representative: Head of University Department.

Dr. Bhupendra Pushkar, I/C, HOD, Department of Biotechnology

B.K. Pushkar

- Subject Experts:

1. Dr (Ms.) Tara Menon, HOD,
Department of Biotechnology, SIES College
2. Dr (Ms.) Sneha Panvalkar, HOD,
Department of Biotechnology, G N Khalsa College
3. Dr (Ms.) Varsha Mane
Department of Biotechnology, University of Mumbai

—
—
—

- Professional Experts:

1. Dr. Girish Mahajan, Asst Director,
Prokaryote and Marine Technology, Piramal Enterprises Ltd
2. Dr. Taruna Madan Gupta,
Scientist D and Head, Innate Immunity, NIRRH, Mumbai

Girish Mahajan
13/03/2015

Taruna Madan Gupta
13/3/2015.

- Student representatives:

1. Trinkle Kothari, Class Representative MSc-II
2. Debaipsa Bhattacharya, Class Representative MSc-I

Trinkle Kothari

— Absent

Principal

PRINCIPAL
ST. XAVIER'S COLLEGE
(AUTONOMOUS)
MUMBAI - 400 001.

