Methodology for Curriculum Development & Implementation

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Feedback from Stakeholders:

- 1. Student
- 3. Alumni
- 4. Corporate
 - 5. Parents

Analysis and Suggestion of Feedback

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Incorporation to Board of Studies (BOS)

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Academic Council

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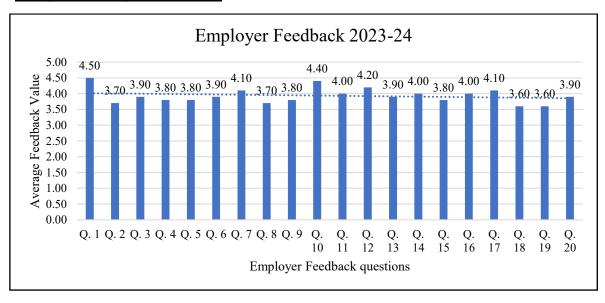
Implementation in Curriculum





Swarrnim Science College Action Taken Report on Employer Feedback 2023-24

> Graphical Representation: -



> Summary: -

Questions	Excellent	Very Good	Good	Average	Poor
1	5	5	0	0	0
2	0	7	3	0	0
3	1	7	2	0	0
4	0	8	2	0	0
5	0	8	2	0	0
6	1	7	2	0	0
7	3	5	2	0	0
8	1	5	4	0	0
9	0	8	2	0	0
10	5	4	1	0	0
11	2	6	2	0	0
12	3	6	1	0	0
13	1	7	2	0	0
14	1	8	1	0	0
15	1	7	1	0	0
16	0	1	0	0	0
17	3	5	2	0	0
18	0	6	4	0	0
19	0	6	4	0	0
20	1	8	1	0	0





Swarrnim Science College Action Taken Report on Employer Feedback 2023-24

> Suggestion received from Employer

- 1. Content should be more related to research and modern era
- 2. More instrumentation topics should be added in curriculum
- 3. Research methodology subject should be added
- 4. Introduce NEP-2020 in Curriculum

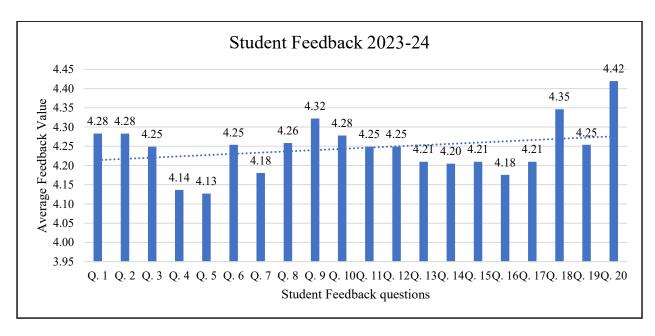
> Suggested action:

- 1. Revise content to align with current research trends and modern scientific advancements.
- 2. Include more instrumentation-related topics to enhance technical and analytical skills.
- 3. Add a dedicated subject on Research Methodology to build foundational research competencies.
- 4. Implement curriculum changes in line with NEP-2020 guidelines to ensure holistic and flexible education.



Action Taken Report on Student Feedback 2023-24

> Graphical Representation: -



> <u>Summary</u>: -

	T	T	T	T	Ī
Questions	Excellent	Very Good	Good	Average	Poor
1	91	84	27	3	0
2	86	93	24	2	0
3	87	82	36	0	0
4	79	76	49	1	0
5	77	81	43	4	0
6	86	90	24	5	0
7	85	76	40	4	0
8	97	68	36	4	0
9	96	83	22	4	0
10	96	72	35	2	0
11	93	72	38	2	0
12	85	87	32	1	0
13	82	88	31	4	0
14	86	78	38	3	0
15	77	95	32	1	0
16	78	87	38	2	0
17	91	72	36	6	0
18	108	63	31	3	0
19	93	76	31	5	0
20	117	60	25	3	0

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Action Taken Report on Student Feedback 2023-24

> Suggestion received from Student

- Should include biotech exclusive subject.
- Give option for elective courses to choose by ourselves.
- Change in teaching scheme and experiment
- Incorporate interactive elements like discussion, hands on task etc.
- Introduce mathematical software like MATLAB, LaTeX etc.

> Suggested action:

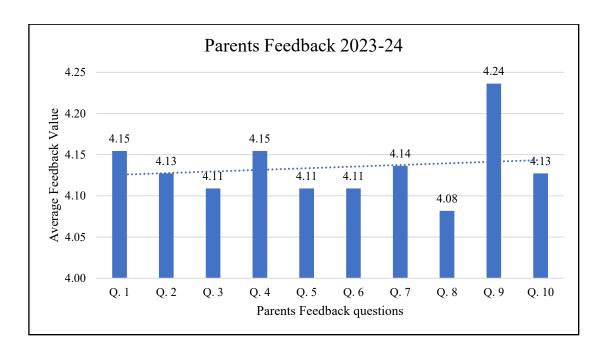
- Introduce exclusive biotechnology subjects to deepen domain-specific knowledge.
- Offer elective course options to allow students to tailor learning based on interests and career goals.
- Revise the teaching scheme and practical experiments to align with updated pedagogical methods and industry relevance.
- Incorporate interactive teaching elements such as discussions, hands-on tasks, and group activities to enhance engagement.
- Integrate mathematical and scientific software like MATLAB and LaTeX to build technical proficiency in data analysis and documentation.

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Action Taken Report on Parents Feedback 2023-24

> Graphical Representation: -



> Summary: -

Questions	Excellent	Very Good	Good	Average	Poor
1	43	41	26	0	0
2	39	46	25	0	0
3	41	40	29	0	0
4	41	45	24	0	0
5	41	42	25	2	0
6	42	38	30	0	0
7	45	37	26	2	0
8	39	43	26	2	0
9	48	40	22	0	0
10	39	46	25	0	0





Action Taken Report on Parents Feedback 2023-24

> Suggestion received from Parents

- 1. Provide workshops on career planning, resume building, and interview skills to better prepare students for job.
- 2. Collaborate with more companies and industries to offer internship program
- 3. Subject book name provides in syllabus
- 4. Provide online learning platforms
- 5. Introduce industry-focused courses
- 6. Lab technician course should be including
- 7. Content should be relatable to local and global contexts
- 8. Want to learn applicable eco-friendly skills

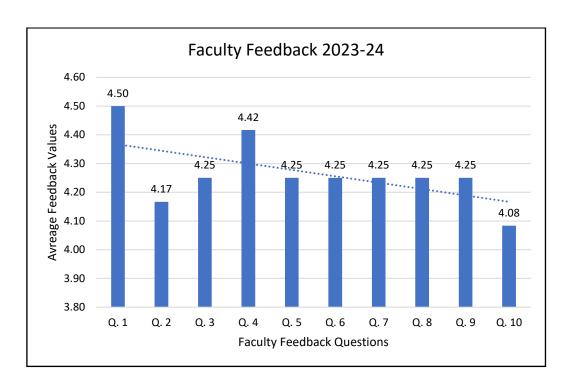
> Suggested action:

- 1. Organize workshops on career planning, resume writing, and interview skills to enhance student employability.
- 2. Establish collaborations with more companies and industries to offer structured internship programs.
- 3. Clearly mention recommended textbooks and reference materials within the syllabus for each subject.
- 4. Facilitate access to online learning platforms (e.g., SWAYAM, NPTEL, Coursera) for blended and flexible learning.
- 5. Introduce industry-focused courses tailored to current trends and job market needs.
- 6. Include a lab technician course to equip students with hands-on technical skills for laboratory roles.
- 7. Design course content that connects theoretical knowledge to both local relevance and global applications.
- 8. Incorporate modules on eco-friendly and sustainable practices with practical applicability.



Action Taken Report on Faculty Feedback 2023-24

> Graphical Representation: -



➤ <u>Summary</u>: -

Questions	Strongly Agree	Agree	Not sure	Disagree	Strongly disagree
1	6	6	0	0	0
2	4	6	2	0	0
3	4	7	1	0	0
4	5	7	0	0	0
5	3	9	0	0	0
6	5	5	2	0	0
7	3	9	0	0	0
8	3	9	0	0	0
9	4	7	1	0	0
10	3	7	2	0	0

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Action Taken Report on Faculty Feedback 2023-24

> Suggestion received from Faculty Members

- 1. Need Practical Approach in syllabus & NEP-2020 syllabus should be implemented.
- 2. Modern techniques should be including in replacement of Traditional one.
- 3. More experiment should be including.
- 4. Course content should be more precise.
- 5. Change the content & Should be more specific to title of the subject
- 6. Start Value added courses based on the biotechnology.
- 7. Green Chemistry should be teaching.
- 8. Add elective subject based on Chemistry.

Suggested action:

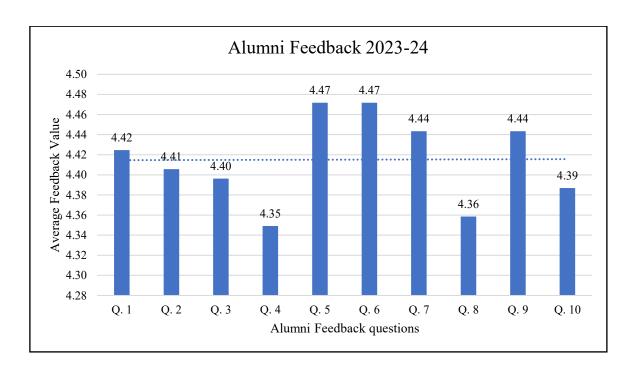
- 1. Align the syllabus with NEP-2020 guidelines, focusing on multidisciplinary learning, flexibility, and skill development.
- 2. Replace outdated methodologies with modern tools, technologies, and techniques (e.g., molecular biology tools, bioinformatics, advanced spectroscopy, etc.).
- 3. Revise laboratory syllabi to include more experiments, especially those with current industry relevance and research orientation.
- 4. Review and revise course content to eliminate redundancies and streamline topics.
- 5. Ensure the syllabus is focused and directly aligned with the subject title and learning outcomes.
- 6. Develop and launch Value-Added Certificate Courses in trending biotech areas like CRISPR, genetic engineering, bioprocess technology, bio-entrepreneurship, etc.
- 7. Include Green Chemistry as a core or elective topic in chemistry-related courses.
- 8. Try to Offer elective subjects in applied and advanced areas of Chemistry (e.g., Analytical Chemistry, Environmental Chemistry, Pharmaceutical Chemistry).





Action Taken Report on Alumni Feedback 2023-24

> Graphical Representation: -



> Summary: -

Questions	Excellent	Very Good	Good	Average	Poor
1	50	51	5	0	0
2	49	51	6	0	0
3	50	48	8	0	0
4	46	51	9	0	0
5	55	46	5	0	0
6	54	49	2	1	0
7	52	49	5	0	0
8	46	53	6	1	0
9	53	47	6	0	0
10	46	55	5	0	0





Action Taken Report on Alumni Feedback 2023-24

> Suggestion received from Alumni

- 1. Promote interdisciplinary projects and publishable research work
- 2. Add practical, job-oriented skills
- 3. Add entrepreneurship modules relevant to the subject area

> Suggested action:

- 1. Encourage interdisciplinary student projects with faculty mentorship and support for publication in journals or conferences.
- 2. Incorporate practical, job-oriented skill training and industry-relevant tools through workshops, internships, and lab-based modules.
- 3. Introduce subject-specific entrepreneurship modules and promote startup culture through innovation cells and expert mentorship.

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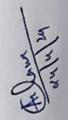
SWARRNIM SCIENCE COLLEGE

08:	Category	Subject	Subject file		Teachin	Feaching Scheme (Per week)	
1	of Course	Code	ann roduce	Theory	Tutorial	Practical (per week hrs)	Credits
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"	Misse	BSC230111	Fundamentals of Rivoshodom		0	0	,
	+	- Income	Salah		0	0	2
		11115	Biotechnology Practical 1	0	0		,
0	MIX	BSC230103	Basic Chemistry-I	,	,		*
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+		BSC230212	Biotechnology Practical 2	0	0	1	,
5	MDC	BSC230203	Basic Chemistry-II-T	1	0	+ 0	7
9		BSC230204		10	0		2
7	SEC	SEC230202	Introduction to Enterprenareship -II	2	0 0	+ 4	2
8	IKS	IKS230201	Indic Knowledge System-II	2	0		2
6	AEC	AEC230201	Literature and Language-II	2	0		7
		Total			,		2







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2. Syllabus:

Module	Contents	No of Sessions	Weightage
i	HISTORY OF MICROBIOLOGY Microbial World and Microscope The spontaneous generation Microbial effects on organic matter The role of Microbes in causation of Disease History of Virology	15	25 %
2	GENERAL MICROBIOLOGY An introduction to Microbiology Microbiology: A multifaceted Science Position of Microorganisms in living world Prokaryotes and eukaryotes	15	25 %
3	SCOPE OF MICROBIOLOGY Major groups of Microorganisms Distribution of Microorganisms in nature Applied areas of Microbiology	15	25 %
4	DEVELOPMENT OF PURE CULTURE TECHNIQUES • Development of immunology, Molecular Biology and Biotechnology • Development of Modern immunology and Chemotherapy • Development of Agricultural microbiology	15	25 %

3.	Evaluation	
i	Assignments / Quizzes / Class Participation / Role Play/ Project etc.	30% (Internal Assessment)
2	Internal Examination	20% (Internal Assessment)
3	External Examination (University Exam)	50% (External Assessment)

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Date: 24/04/2024

Board of Studies - Minutes of Meeting

Swarrnim Science College

Following are the members of BoS (Board of Studies) of 2 Course that comes in Semester 5 & 6 (Green Chemistry & Biodiversity) whose meeting held on 20/05/2024 for the discussion of syllabus, teaching scheme and modification of syllabus for Mentioned courses, course running under SSIU for their academic semester/year starting from month of July, 2024 which is chaired by Provost and continued by Registrar and Academic deans and heads of different specialization/courses/branch of different schools of SSIU.

BoS members for Physics (B.Sc. - UG)

Name of Faculty/expert	Designation – Organization	Remarks/ Suggestions
Dr. Hemant Prajapati	Associate Professor, Department of Chemistry, SGGU, Godhra, Gujarat	Expert has Proposed of External examiner for practical exams also they suggested for paper setting and paper checking.
Dr. Archana Pandey	I/C Principal, Swarmim Science College, SSIU	Based on Syllabus, Exposure Visit Could be added to curriculum.

n. P. Becy'a Pati	
Dr. Hemant Prajapati	Dr. Priti Mahla Dr. Archena Pandey
External BoS member	Internal BoS member



Swarnim Start-Up & Innovation University Swarrnim Science College

Bachelor of Science Semester V

Course Title: Green Chemistry
Course Code: 253000503

	Teachi	ng Sch	eme	THE PARTY	Evaluation Scheme						
Th	Tu	P	T-4-1	Credit	Inte	rnal	Exte	rnal	Total		
	14	1	Total		Th	Pr	Th	Pr	10		
2	-	-	2	69	30		70	-	100		

1. Course Outcomes (COs)

CO 1	Define and explain the principles, importance, and community role in green chemistry
CO 2	Design environmentally friendly chemical syntheses using the twelve principles of green chemistry
CO 3	Assess chemical reaction efficiency using concepts like reaction mass balance and atom economy
CO 4	Describe the use of green solvents, media, and the roles of catalysis in chemical processes
CO 5	Utilize advanced green chemical strategies, including microwave reactors, for sustainable development
CO 6	Explain principles and applications of photochemical degradation for eco-friendly waste treatment

2. Detailed Syllabus

Module	Contents	No of Sessi ons	Weighta ge
1	Introduction to Green Chemistry Introduction, Benefits of Green Chemistry, Green chemistry metrics, Atom Economy, Percentage yield, Reaction mass efficiency, Effective mass efficiency, Environmental factor	8	25%
2	Principles of Green Chemistry Principles of Green Chemistry and Designing a Chemical synthesis, Reactions and some real world cases, Future Trends in Green Chemistry, Green Dry Cleaning of Clothes, Versatile Bleaching Agents, Green Solution to Turn Turbid Water Clear	8	25%
3	Green Solvents Introduction, Super Critical Fluids Extraction, Solvents of supercritical fluid extraction, Supercritical carbon dioxide-sCO2, Applications of supercritical CO2, Features of supercritical carbon dioxide, Advantages of supercritical CO2as solvents, Ionic Liquids	8	25%
4	Green Synthesis Introduction, Synthesis of adipic acid, Synthesis of catechol, Synthesis of benzyl bromide, Synthesis of Paracetamol, Synthesis of Ibuprofen, Microwave assisted reactions in water, Ultrasound assisted reactions	6	25%

3. Evaluation

1 2	Internal Examination	30% (Internal Assessment)
1 2	External Examination (University Exam)	70% (External Assessment)



Swarnim Start-Up & Innovation University Swarrnim Science College

Bachelor of Science Semester V

Course Title: Biodiversity
Course Code: 253000603

1	Teachi	ng Sch	eme			E	valuatio	Scheme	
Th	T.			Credit	Inte	rnal	Exte	rnal	Total
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1. Course Outcomes (COs)

Cos	Course Outcome Statement
COI	Explain the definition, levels, importance, and threats to biodiversity, and evaluate conservation efforts.
CO2	Identify and categorize microbial diversity and assess their industrial, pharmaceutical, and agricultural utilities.
CO3	Use sampling techniques to quantify plant diversity and describe geodiversity, forests, and medicinal plants.
CO4	Classify faunal diversity into invertebrates and vertebrates, and explain evolutionary trends.
CO5	Propose strategies for biodiversity conservation and sustainable resource use.

Detailed Syllabus

Module	Contents	No of Sessi ons	Weighta		
1	Biodiversity -Definition, different levels, importance, threats, Global and local efforts for conservation.	4	25%		
2	Microbial Diversity - Different forms, Utility - industrial, pharmaceutical, agricultural, methods for isolation and identification	4	25%		
3	Plant Diversity – Sampling for quantification, different forms, geodiversity, forests and medicinal	*	25%		
4	Faunal Diversity - Origin of life, characteristics, different forms, invertebrates, evolutionary trend	4			

4.	Evaluation	30% (Internal Assessment)
1	Internal Examination	70% (External Assessment)
2	External Examination (University Exam)	,,,,,

3. Reading for Suggested Syllabus/Reference books

- 1. Biodiversity, TERI, New Delhi
- 2. Textbook of Microbiology, S Chand and Co., New Delhi
- 3. An Advanced Textbook on Biodiversity, Oxford & IBH, New Delhi
- 4. Ecology, Cengage Learning, New Delhi APA.

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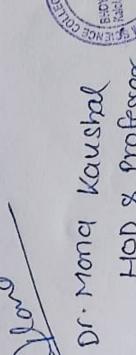


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Swarmim Startup & Innovation University SWARRNIM SCIENCE COLLEGE

Master of Science (M.Sc.) Quality Assurance; Teaching syllabus & examination pattern

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Swarnim Startup & Innovation University SWARRIM SCIENCE COLLEGE

Master of Science (M.Sc.) Pharmacology; Teaching syllabus & examination pattern

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