

SELF ASSESSMENT REPORT (SAR)

For Accreditation of Master of Perfumery and Flavour Technology

(Tier -1)

Submitted

To



NATIONAL BOARD OF ACCREDITATION,

New Delhi

Application No. 5052-26-10-2020



INSTITUTE OF CHEMICAL TECHNOLOGY

(Deemed University under Section 3 of UGC Act 1956;
Elite Status and Centre of Excellence – Govt. of Maharashtra)

Part A: Institutional Information

1 Name and Address of the Institution:

INSTITUTE OF CHEMICAL TECHNOLOGY, MUMBAI
NATHALAL PAREKH TECHNOLOGY MATUNGA MUMBAI-400019

2 Name and Address of the Affiliating University, if applicable:

3 Year of establishment of the Institution:

1933

4 Type of the Institution:

<input type="checkbox"/> Institute of National Importance	<input type="checkbox"/> Affiliated
<input type="checkbox"/> University	<input type="checkbox"/> Autonomous
<input checked="" type="checkbox"/> Deemed University	<input type="checkbox"/> Any Other(Please Specify)

5 Ownership Status:

<input type="checkbox"/> Central Government	<input type="checkbox"/> Trust
<input checked="" type="checkbox"/> State Government	<input type="checkbox"/> Society
<input type="checkbox"/> Government Aided	<input type="checkbox"/> Section 25 Company
<input type="checkbox"/> Self financing	<input type="checkbox"/> Any Other(Please Specify)

6 Details of all the programs offered by the institution:

Name of Program	Program Applied level	Start of year	Year of AICTE approval	Initial Intake	Intake Increase	Current Intake	Accreditation status	From	To	Program for Consideration	Program for Duration
Dyestuff Technology	UG	1944	1944	16	Yes	20	Granted accreditation for 5 years for the period (specify period)	2016	2022	No	4

Sanctioned Intake for Last Five Years for the Dyestuff Technology:

Academic Year	Sanctioned Intake
2021-22	20
2020-21	20
2019-20	20
2018-19	20
2017-18	20
2016-17	20
2015-16	20
2014-15	20

Name Of Program	Program Applied Level	Start Year	Year of AICTE Approval	Initial Intake	Intake Increase	Current Intake	Accreditation status	From	To	Program for consideration	Program for Duration
Perfumery and Flavor Technology	PG	1990	1990	5	Yes	18	Granted accreditation for 5 years for the period (specify period)	2015	2020	Yes	2

Sanctioned Intake for Last Five Years for the Perfumery and Flavor Technology:

Academic Year	Sanctioned Intake
2021-22	18
2020-21	18
2019-20	18
2018-19	18
2017-18	18
2016-17	5
2015-16	5
2014-15	5

Name Of Program	Program Applied Level	Start Year	Year of AICTE Approved	Initial Intake	Intake Increase	Current Intake	Accreditation status	From	To	Program for Consideration	Program For Duration
Dyestuff Technology	PG	1961	1961	4	Yes	18	Granted accreditation for 5 years for the Period(specify period)	2015	2020	No	2

Sanctioned Intake for Last Five Years for the Dyestuff technology:

Academic Year	Sanctioned Intake
2021-22	18
2020-21	18
2019-20	18
2018-19	4
2017-18	4
2016-17	4
2015-16	4
2014-15	4

B.Tech Polymer Engineering and Technology	B.Tech- Pharmace uticals Chemistry and	B.Tech- Oils, Oleochemicals and Sufactant Technology	B.Tech- Fibres and Textile Processing Technology	B.Tech- Food Engineering and Technology	B.Tech - Dyestuff Technology	Bachelor of Chemical Engineering	Name of Program
UG	UG	UG	UG	UG	UG	UG	Program Applied level
1946	1943	1943	1934	1943	1944	1934	Start of year
1946	1943	1943	1934	1943	1944	1934	Year of AICTE approval
4	10	16	34	16	16	75	Initial Intake
Yes	Yes	No	No	No	Yes	Yes	Intake Increase
16	18	16	34	16	18	30	Current Intake
Granted accreditatio n for 5 years for the	Granted accredita tion for 3 years for	Granted accreditation for 5 years for the period	Granted accreditation for 5 years for the	Granted accreditation for 5 years for the period	Granted accreditati on for 5 years for	Granted accreditatio n for 5 years for the	Accreditation status
2016	2017	2016	2016	2016	2016	2016	From
2022	2020	2022	2022	2022	2022	2022	To
0	0	0	0	0	0	No	Program for consideration
4	4	4	4	4	4	4	Program for consideration

M.Tech - Pharmaceutical s Chemistry and Technology	M.Tech - Oils, Oleochemicals and Sufactant Technology	M.Tech - Fibres and Textile Processing Technology	M.Tech - Food Engineering & Technology	M. Pharmacy	M. Chemical Engineering	B. Pharmacy	B.Tech Surface Engineering & Technology
PG	PG	PG	PG	PG	PG	UG	UG
1966	1943	1961	1946	1961	1958	1959	1946
1966	1943	1961	1946	1961	1958	1959	1946
5	6	18	5	6	18	30	4
Yes	Yes	No	Yes	Yes	Yes	Yes	Yes
18	18	18	18	18	30	15	16
Granted accreditation for 5 years for the period	Granted accreditation for 3 years for the period	Granted accreditati on for 5 years for	Granted accreditatio n for 5 years for the	Granted accreditati on for 3 years for	Granted accreditatio n for 5 years for the	Granted accreditatio n for 5 years for the	Granted accreditatio n for 5 years for the
2020	2020	2015	2020	2014	2016	2016	2016
2026	2023	2020	2026	2017	2021	2021	2022
0	0	0	0	0	0	0	0
2	2	2	2	2	2	4	4

7 Programs to be considered for Accreditation vide this application:

Sr. No.	Level	Discipline	Program	Current Year Sanctioned Intake	Current Year Admission (in Nos.)
1	Post Graduate	Engineering & Technology	Perfumery and Flavour Technology	18	18

8 Vision of the Institution:

We shall perennially strive to be a vibrant institute with continuously evolving curricula to brighten the future of the chemical, biological, materials and energy industries of the nation, and rank amongst the very best in the world through active participation and scholarship of our faculty, students and alumni.

We shall be creators of sprouting knowledge and design cutting-edge technologies that will have the greatest impact on society and benefit mankind at large.

9 Mission of the Institution:

We shall generate and sustain an atmosphere conducive to germinating new knowledge at every available opportunity. The education we shall impart will enable our students to devise new solutions to meet the needs of all segments of society with regard to material and energy, while protecting the environment and conserving the natural resources.

Our endeavors, while extending well beyond the confines of the classroom, will aim to enhance public welfare and our attempts to disseminate knowledge will spread to a greater multi- and cross-disciplinary platform to conduct research, discovery, technology development, service to industry and entrepreneurship, in consonance with India's aspirations to be a welfare state.

We will team scientists and engineers with professionals in other disciplines to arrive at better solutions. We will provide all our students with a strong foundation to encourage them to be our ambassadors in the professional activities that they choose to undertake in service of society at national and international levels. Through our vision, we will serve the profession and society and strive to reach the summit as a team, and ultimately serve as role models to the younger generation.

10 Contact Information of the Head of the Institution and NBA coordinator, if designated

Head of the Institution	
Name	Prof. Aniruddha Pandit
Designation	VICE CHANCELLOR
Mobile No.	9820408037
Email ID	vc@ictmumbai.edu.in

NBA Coordinator, If Designated

Name	Dr. Ashwin Mohan
Designation	Assistant Professor
Mobile No.	+91 9869506632
Email ID	as.mohan[@]ictmumbai.edu.in

Part B: Departmental Information

1. State the Vision and Mission of the Department:

Vision:

• Empowering the knowledge of perfumery, flavours and cosmetics through learning a cutting-edge technology for the benefit of mankind.

Mission:

- To educate students and professional in the area of perfumery and flavour, cosmetic technology.
- To serve and upgrade the aroma industry in the form of chemical technology so as to make them competitive in local and global market.
- Actively nurturing with close co-operation at National and International levels, with reputed institutions, industries, research and development organization and universities.

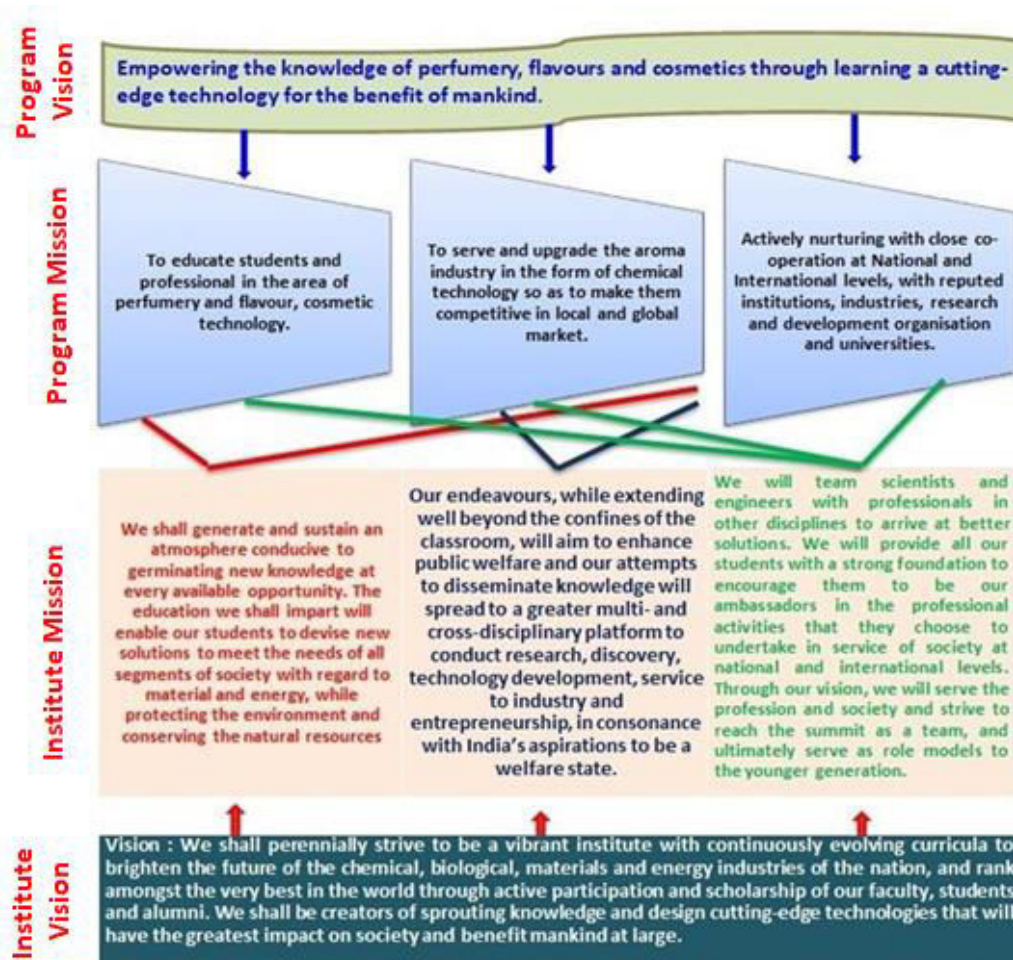
2. Justification of consistency of the Department Vision and Mission with the Institute Vision and Mission:

The departmental guiding principles for students in M. Tech Perfumery and Flavour Technology are as follows,

- To empower our students with ethics and integrity about strong fundamentals, knowledge and skills.
- Practices through industrial in-plant training and industrial visits so that they are able to serve the perfumery and flavour industry.
- The program is committed to nurture the spirit of innovation and creativity among students, faculty and staff.

The mission of the M.Tech (Perfumery and Flavour Technology) program is consistent and perfectly aligned to the institutional mission.

The institutional mission as well as the program mission is to strive to encourage holistic development of the students in terms of knowledge of cutting-edge technologies. Inculcate abilities and attitudes so that the students are able to serve the society, beneficial to the nation and the world. The department constantly strives towards the growth and development for graduates, faculty and staff. The three missions of the department are well connected to specific components of the institute mission shown below:



The mission of M.Tech. Perfumery and Flavour Technology program is consistent and perfectly aligned to the institutional mission.

The institutional mission as well as the program mission is to strive to encourage holistic development of the students in terms of knowledge of cutting-edge technologies. Inculcate abilities and attitudes so that the students are able to serve the society, beneficial to the nation and the world. The department constantly strives towards the growth and development for graduates, faculty and staff. The three missions of the department are well connected to specific components of the institute mission shown below.

3. Details of all UG & PG Programs offered by the department:

Sr. No.	PG Program Name	Corresponding UG Program/Department Name	Current Year Sanctioned Intake	Current year Admission (In Nos.)
1	M.Tech Perfumery and Flavour Technology	Department of Speciality Chemicals	18	18
2	M.Tech Dyestuff Technology	Department of Speciality Chemicals	18	6

4. State the Program Educational Objectives (PEOs) for the PG program(s) under consideration for accreditation:

PEO No.	Program Educational Objectives Statements
PEO1	To develop the ability to demonstrate technical competence in the field of perfumery and flavour and develop solutions to the problems in its various areas.
PEO2	To provide students with a hands-on approach to perfumery and flavour technology, so that students process the required needs under the realistic constraints
PEO3	To attain professional excellence through lifelong learning and qualities of professional leadership to deliver effectively in multidisciplinary team and domains.

PART C: Criteria Summary

Criteria No.	Criteria	Total Marks	Institute Marks
1	PROGRAM CURRICULUM AND TEACHING –LEARNING PROCESSES	125	125.00
2	PROGRAM OUTCOME	75	75.00
3	STUDENTS' PERFORMANCE	75	55.00
4	FACULTY CONTRIBUTIONS	75	75.00
5	LABORATORIES AND RESEARCH FACILITIES	75	75.00
6	CONTINUOUS IMPROVEMENT	75	75.00
	Total	500	480

1. PROGRAM CURRICULUM AND TEACHING –LEARNING PROCESSES(125) Insitute Marks:125

1.1 Program Curriculum(35) Total Marks: 35.00

1.1.1. State the process for designing the program curriculum (10) Institute Marks: 10.00

Guiding principles and aims for M.Tech in Perfumery and Flavour Technology are

- To enable our students with strong fundamentals, knowledge & skills in the fields of perfumery and flavour technology.
- Practices through vigorous training and course content so that they are able to serve the industry in general and society at large.
- To acquire a strong background in the basic science of fragrance and flavour.
- The program is committed to foster spirit of innovation and creativity among students, faculty and staff.

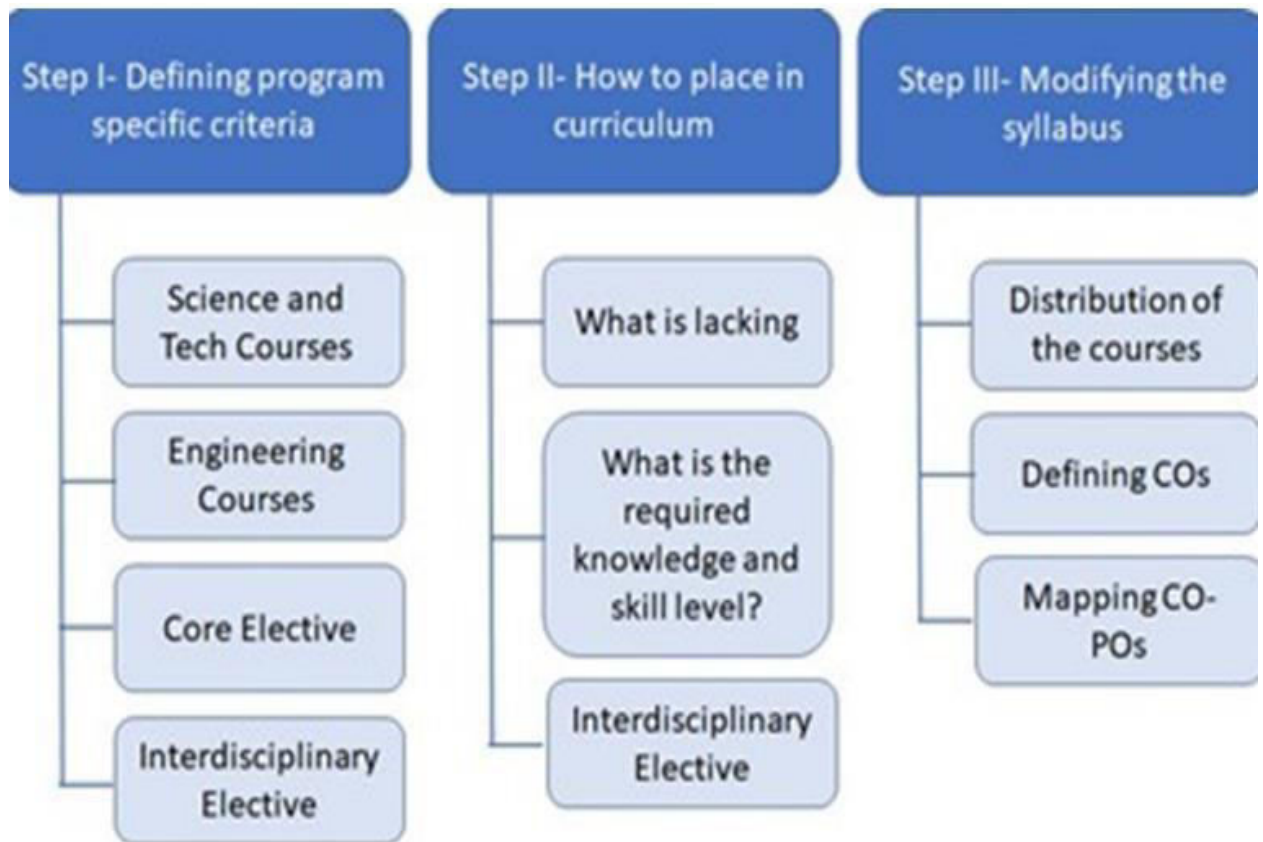
The curriculum for M. Tech. in Perfumery and Flavour Technology is developed by taking into consideration:

- I. The needs of the learner while they are in master's degree in this field.
- II. The content in terms of M.Tech. in Perfumery and Flavour Technology.
- III. Instructional methodology for learning master level courses.

The criteria for defining curriculum are:

1. Should satisfy Program Specific Criteria
2. Basic knowledge in science, mathematics and computing
3. Basic and core knowledge in perfumery, flavour and cosmetics domain areas
4. In depth and broad knowledge in Science and Technological in perfumery, flavour and cosmetics domain areas
5. Balance between theory, practical and tutorial
6. Total credits, distribution of credit for different components and domains
7. Literature study, Seminar, internship, projects and presentation
8. Should meet the requirements of Program Outcomes (POs)

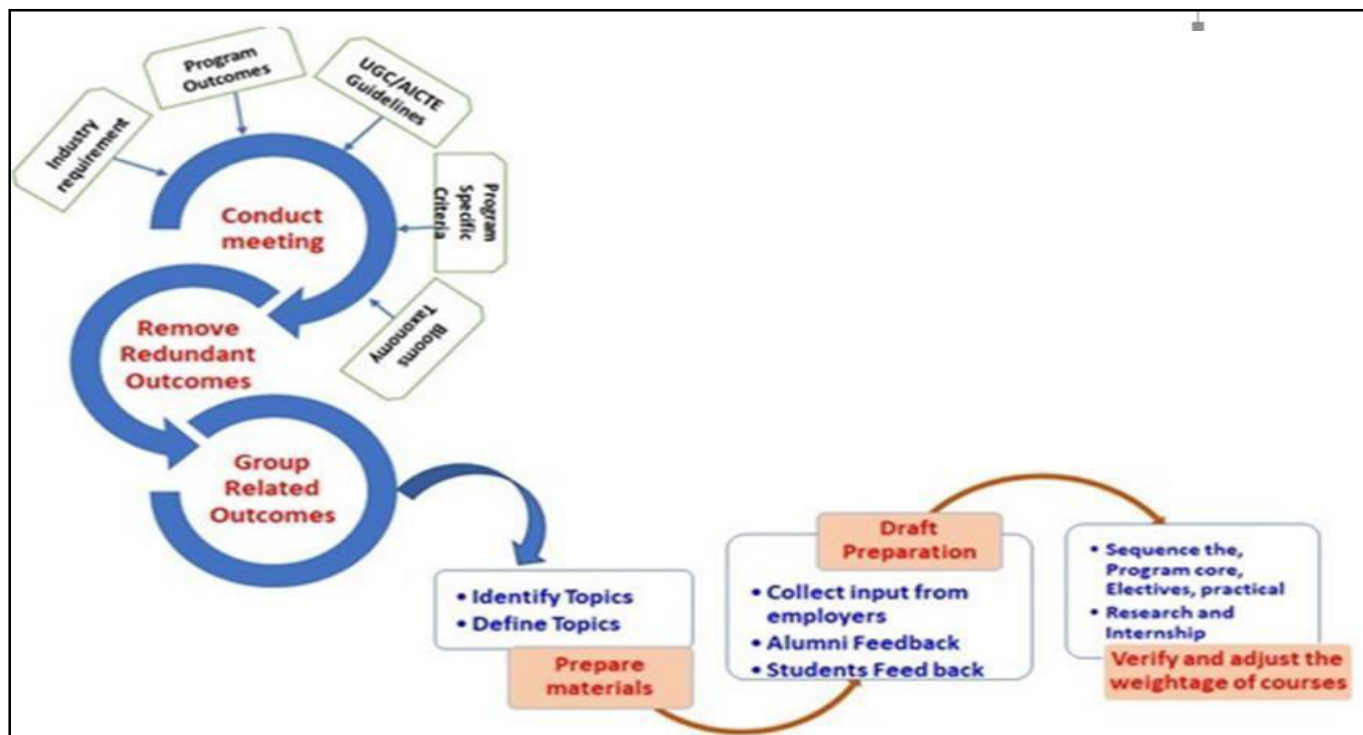
The steps for developing curriculum are given below:



Programme Curriculum is revised on the basis of:

- Changing needs related to developments in the field.
- Improvements based on feedback from students, alumni.
- Feedback from industry based on their requirements.
- Suggestions from faculty members, experts from Industry and Experts from other institutes/universities.

Decision Making loop and defining the Curriculum

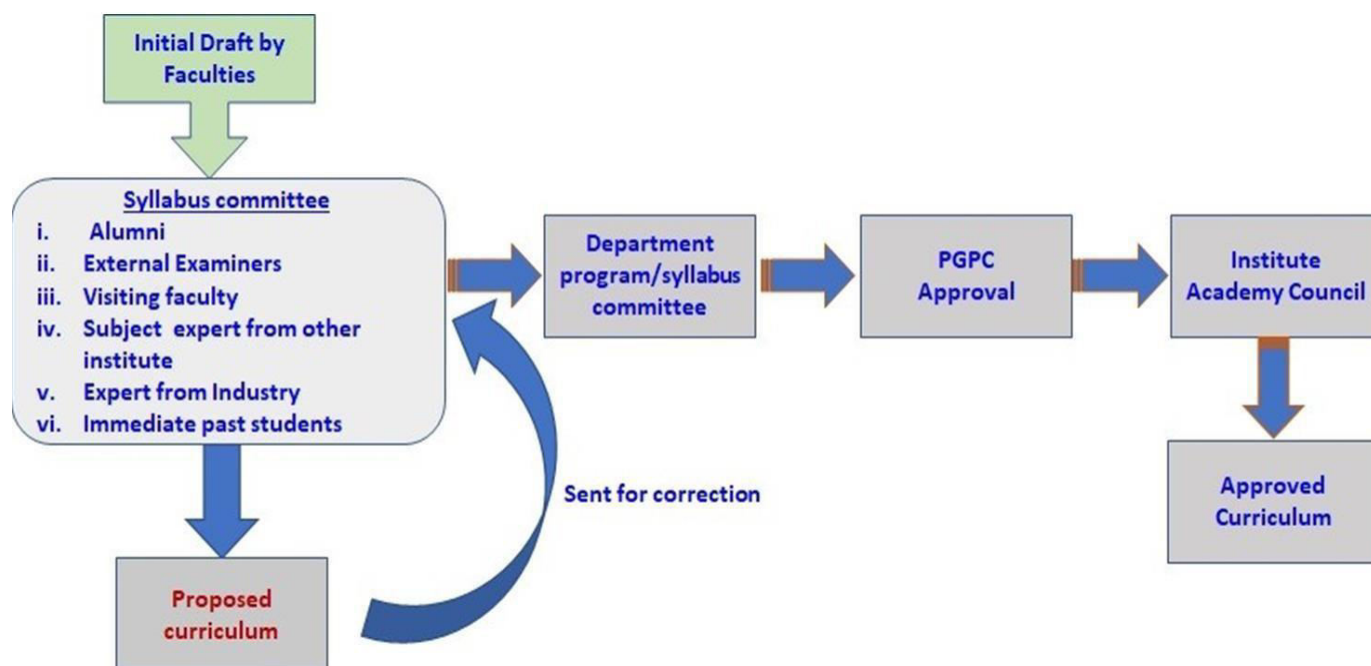


The Departmental administrative committee comprised of all faculties from department including HoD, formulated the initial draft for the curriculum. Then the initial draft was past students for further suggestion. Based on the suggestion received, the academic program/syllabus committee discussed, critically analyzed the suggestion and propos the syllabus committee members for modifications/corrections. After receiving consensus from all, the drafted curriculum was finally accepted for implementation.

Following points were considered for making curriculum:

- Based on the present needs of industry, the curriculum has been designed and courses are delivered to meet the vision of the department as well as vision of Institute
- Core subjects are designed based on Synthesis, characterization, unit process involved, science and technology of ingredients, Natural fragrances and Flavours.
- Practical course are designed for creation of fragrance and flavours, Olfaction and Sensory education.
- Various elective courses include cosmetic chemistry, analytical chemistry, quality control and purification.
- Courses on industrial Management, marketing and customer behavior are included.
- In addition to the above, course includes a Seminar Presentation and Research project which enrich the student with skills of independent learning, thinking and innovation exposure to the industry adding immense value to learning.
- Finally researches on the thesis topic provide students opportunity to gain hand on training on design, synthesis, characterization and application on science and technology.

The schematic representation of the whole process is as shown below :



1.1.2. Structure of the Curriculum (5)

Institute Marks 5.00

ID	Course Code	Course Title	Lecture (L)	Tutorial (T)	Practical (P)	Total hours	Theory credit	Practical credit	Total credit
1	PFT101	Chemistry of Ingredients in Fragrance and flavors	2	1	0	3	3	5	3
2	PFT102	Technology of Fragrance and flavors	2	1	0	3	3	5	3
3	PFT103	Creation of Fragrance and flavors	2	1	0	3	3	5	3
4	PFT104	Cosmetics Chemistry and Technology	2	1	0	3	3	5	3
5	PFT005	Analytical chemistry and quality control techniques	2	1	0	3	3	5	3

6	PFP002	Seminar and Critical Review	0	0	6	6	0	3	3
7	PFP001	Olfaction and Sensory Education	0	0	6	6	0	3	3
8	PFP003	Research I	0	0	12	12	0	6	6
9	PFT007	Natural products for Fragrance and flavors	2	1	0	3	3	0	3
10	PFT008	Marketing Management and Customer Behavior	2	1	0	3	3	0	3
11	PFT108	Application of Fragrance and flavors	2	1	0	3	3	0	3
12	PFT009	Technology and Science of Essential Oils	2	1	0	3	3	0	3
13	PFT012	Synthetic perfumes and flavor chemistry	2	1	0	3	3	0	3
14	PFP002	Blending and Creation for Fragrance and Flavors	0	0	6	6	0	3	3
15	PFP004	Research II	0	0	18	18	0	9	9
16	PFP005	In plant training	0	0	40	40	0	30	30
17	PFP006	Research, Thesis and Open defense	0	0	40	40	0	30	30
		Total	20	10	128	158	30	84	114

1.1.3. Components of the curriculum (10)**Institute Marks: 10.00**

Course Components	Curriculum Content (% of total number of credits of the program)	Total number of contact hours	Total number of credit
Program Core	15.8	270	18
Program Electives	5.3	90	6
Open Electives	5.3	90	6
Mini Project(s)	0	0	0
Internships/Seminars	28.9	690	33
Major Project(s)	39.5	1050	45
Any other (Please specify)	5.3 (Practical)	180	6
Total number of Credits			114

1.1.4. Overall quality and level of program curriculum (10)

Institute Marks: 10.00

Content	ICT Mumbai	V. G. Vaze college, Mumbai	FFDC, Govt of India	ISIPCA, France
Duration	2 years	1 year	1 year	2 years
Core subjects	Chemistry of Ingredients in Fragrance and flavors Technology of Fragrance and flavors Creation of Fragrance and flavors Natural products for Fragrance and flavors Application of Fragrance and flavors Practical on Olfaction and Sensory Education Practical on Blending and Creation for Fragrance and Flavors = 12.15%	Understanding and recognition of various raw materials in perfumery and cosmetics and their properties Fundamental and applied chemistry On-hand practical training in the formulations of various personal care products Manufacturing process in the industry Cosmetic products Active ingredients and herbal cosmetics Sensory and psychophysiology of sensory appeal Environmental conservation	Aromatic plants for natural aroma Purification: Distillation, Hydro-stream, Extraction Basic chemistry, physical and chemical properties Instrumental-analysis Evaluation of essential oils, aroma chemicals for fragrances and flavors	Cosmetic topics -30% Perfumery topics -30% Scientific topics -20% Registration & Quality - 10% Perfumery & Cosmetic General Culture - 10%

<p>Elective</p>	<p>Technology and Science of Essential Oils</p> <p>Separation process in perfumes and flavor industry</p> <p>Synthetic perfumes and flavor chemistry</p> <p>Production of Aroma Chemicals</p> <p>= 10.6%</p>	<p>-----</p>	<p>-----</p>	<p>Three electives dedicated to the Fragrance & Cosmetic Industries : new product development, environmental management & regulatory affairs, operations management in the Industry - 30%</p>
<p>Marketing and business management</p>	<p>Marketing Management and Customer Behavior = 2.65%</p>	<p>Legislative regulations Indian, US, Europeans and Japanese Regulations</p> <p>Operations Management</p> <p>Human Resource Management</p> <p>Management of Information</p> <p>Basic Accounting and Management</p> <p>Cost Accounting, Context of Business Enterprise,</p> <p>Marketing and Entrepreneurship & Strategic Development of Enterprise.</p>	<p>Quality management</p> <p>Industrial management</p> <p>Financial management</p> <p>Govt policies Labour law</p>	<p>Accounting and Finance -10%</p> <p>Management in organization - 10%</p> <p>Marketing Management and Customer behavior - 10%</p> <p>Operation management -10%</p>

Seminar and Critical Review	Survey literature related to the given topic, Analyze the reported outcomes and classify the work under key categories. Write a technically correct report = 2.6%			
Internship	Compulsory internship in the industry = 26.3%	-----	Internship in industry or research institute	Compulsory internship in the industry - 30%
Research	Includes Research 1, 2 and 3 components. Research 1 includes review the existing literature for research topic and write a report. Research 2 includes develop detailed plan of experiments/simulations and present the work. Write the report Research 3 - Systematically perform experiments/modelling, analysis and application, Study, thesis and open defense = 39.5%		Project work and preparation of reports	

1.2. Teaching-Learning Processes(90)

Total Marks 90.00

1.2.1. Quality of end semester examination, internal semester question papers, assignments and evaluation (20)

Institute Marks: 20.00

The weightages of different modes of assessments are:

	Continuous mode	Mid Semester Exam	End Semester Exam	Components of continuous mode
Theory	20%	30%	50%	Quizzes, class tests (open or closed book), home assignments, group assignments, <i>viva-voce</i> assignments, discussions
Practical	50%	-	50%	Attendance, <i>viva-voce</i> , journal, assignments, project, experiments, tests
Seminar/ Research work			100%	Continuous evaluation not applicable, End semester evaluation will be based on written report evaluation and presentation in front of the external examiner within the Department

In-Semester Evaluation (Mid Sem and Continuous evaluation):

- 1) It is expected that the professor would conduct at least two assessments (in any form as quizzes, tests, homework, group work etc.) under the continuous mode in a semester
- 2) The professor will announce at the beginning of the respective course the method of conducting the tests under the continuous mode and the assignment of marks
- 3) In-semester performance of all students should be displayed and sent to the academic office by the teacher at least 15 days before the end-semester examination
- 4) For the theory courses, there will be one mid-semester test for each course to be held as per the schedule fixed in the Academic Calendar.
- 5) For mid –semester examinations in theory papers, duration of examination will be 1 hour for 3 credit courses and 2 hours for 4 credit courses.

End-Semester examination:

- 1) The semester end examination will cover the full syllabus of the course and will be conducted as per the Institutional time table at the end of each semester.
- 2) For end –semester examinations in theory papers, duration of examination will be 1 hour for 3 credit courses and 2 hours for 4 credit courses.
- 3) For the end semester evaluation of seminar/research work, student will be expected to submit a written report and also make a presentation. The evaluation will be based on the quality of the written report and presentation.

1.2.2. Quality of student project (30)

Institute Marks:30.00

All the student projects are based on sustainability, development of new research areas and process development in the areas of perfumery and flavors. A student project is evaluated from Research Project I, II and III.

The Research project I is concerned with detailed literature review of the assigned research area in consultation with the guide, developing an experimental/simulation protocol and initiate the actual research work. At this stage, a student analyze the existing literature for the assigned research topic and develop detailed plan of experiments/simulations. It also includes modelling activity to accomplish the set objectives. Finally students write a technically correct report as per the suggested guidelines and present the work.

Research II is concerned with the continuation of the research project 1 that executed in the first semester. The exact work plan is decided in consultation with the research guide. At the end of the project, the candidate is expected to submit a report as per similar guidelines provided for Research I above which will be evaluated both by the research guide and an external examiner from the Department/Industry based on the presentation made by the candidate. A suitable combination of the marks for report and presentation will be considered for the final evaluation.

Research III is Thesis submission and Viva Voce. A typical thesis five chapters viz. Introduction, Literature Review, Materials & Methods, Results and Discussion, Summary and Conclusion. The Thesis is evaluated by the External Examiner and the students defend their thesis in front of a large gathering.

The thesis is evaluated out of 450 marks and the rubrics for evaluation is given below,

Details	Max. Marks	Internal Examination	External Examination
Understanding of Research Area	70		
Problem formulation/Experimental design/Mathematical Modelling	60		
Quality of Work done	70		
Analysis and Interpretation of Results	70		
Quality of Thesis Submitted	60		
Quality of Presentation	60		
Answer to Question raised during Open Defence	60		
Total	450		

Finally Examiner recommends whether the thesis submitted by the student is acceptable, may be regarded as final in present form or acceptable but with minor revisions.

M.Tech from Department of Flavors and Perfumery, Batch 2015, 2016, 2017, 2018, 2019, 2020

A	<u>M. Tech from Department of Flavors and Perfumery, Batch 2015</u>			
Sr. No	Roll Number	Name	Thesis title	Broad category of the subject
1	15PER2001	Surabhi Sunil Choudhary	1, 8- Cineole Derivatives Using Deep Eutectic Solvents & Formulation Of Fragrance Blends.	Synthesis
2	15PER2002	Prachi Abhay Nagar	Extraction & Development of New Flavour	Processing, Product development & Analysis
3	15PER2003	Vaibhav Bajirao Patil	Green Synthesis & Application of Perfumery & Flavour Compounds	Synthesis & Application
4	15PER2004	Sania Milind Karanjkar	Selectivity Engineering in Synthesis of p-Cresyl Methyl Ether: Comparison of Batch v/s Vapour Phase Continuous Reactions	Synthesis
5	15PER2005	Akshada Dilip Thorat	Extraction of Flavour from Natural Waste	Processing, Analysis & Application
6	15PER2006	Radhika Vidyadhar Karve	Extraction of Essential Oil from Nutmeg Seeds, Encapsulation & its Applications	Processing Product Development, Analysis & Application
7	15PER2007	Prashant Chakadhar Hendre	Study & Development of Essential Oil Nano Emulsion using Novel Approach	Product development Processing & Analysis

B	<u>M.Tech from Department of Flavours and Perfumery, Batch 2016</u>			
Sr. No	Roll No.	Name	Thesis title	Broad category of the subject
1	16PER201	Aishwarya Ajay Patil	Graphene oxide supported metal catalyst for the hydrogenation of p-tertbutylphenol to p-tertbutylcyclohexanol, a fragrant molecule	Processing, Product Development
2	16PER202	Devanand Rajkumar Patre	Creation of sugar replacement flavour by using high intensity sweeteners and reduction of sugar level in beverages by flavour route	Product Development
3	16PER203	Dhamee Paresh Joshi	Environmentally benign approach in synthesis of aromachemicals from furfural and 5- HMF and its application	Synthesis and Product Development
4	16PER204	Harsha Pradip Datey	Application of ionic liquid in synthesis of aroma compounds and extraction of Cyperus scariosus oil.	Processing, Synthesis, Product Development
5	16PER205	Prachi Devidas Sadawarte	Utilization of Food industry waste for the extraction of the flavours and its application	Analysis, Application
6	16PER206	Pravin Ashok Garule	Study on ultrasound pretreatment method for extraction of essential oil from Piper betel and its application	Analysis, Application
7	16PER207	Raghavendra Kishanrao Dharmadhikari	Extraction, Isolation and Characterization of Essential oil and Coumarins from Aegle marmelos	Processing, Analysis
8	16PER208	Revathi Vijaykumar Nair	Fragrance Release study and application of ionic liquid in synthesis	Analysis, Application
9	16PER209	Saurabh Bhagwanrao Ambure	Separation of essential oil from fruits of piper cubela and isolation of its components	Analysis, Processing
10	16PER210	Sushant Shriram Davane	Approach to obtain healthy savoury snack food.	Product Development, Analysis.

C				
<u>M. Tech from Department of Flavours and Perfumery, Batch 2017</u>				
Sr. No	Roll Number	Name	Thesis title	Broad category of the subject
1	17PER201	Govind Suryakant Bhumbe	Studies on <i>Zingiberofficinale</i> & Isolation of Zingerol	Processing & Analysis
2	17PER202	Kishan Babu Velambath	Synthesis of Jasminaldehyde via cross aldol condensation reaction using recyclable phase transfer catalysts	Synthesis
3	17PER203	Lubha Shailendra Deshmukh	Selective Oxidation of Furfural to 2-Furoic Acid using Vanadium Supported on Titanium Oxide as catalyst	Processing & Product development
4	17PER204	Pradeep Rajendra Tandale	Creation of Dairy Alternatives Flavour by using Flavouring Ingredients for Fat Replacement & Lactose Intolerance	Synthesis & Product development
5	17PER205	Pratap Arjunrao Kadam	Selectivity Engineering in Synthesis of Monoterpene Oxabicyclo-[3.3.1]-nonene from Limonene & Benzaldehyde using Solid Acids & Super Acids	Synthesis
6	17PER206	Ranjit Rohidas Jadhav	Extraction of Aroma Compounds from the Spice <i>Zanthoxylum rhesta</i> & Comparative Study of its Extraction Methods & Application	Processing & Application
7	17PER207	Smrithi Sampathkumar	Extraction of Flavour Compound from the <i>Hemidesmus indicus</i> using Ultrasound: Process Intensification Studies	Processing & Application
8	17PER209	Sushil Sanjay Chaudhari	Synthesis & Application of Aroma Molecules by Using Various Oxidizing Agents	Synthesis & Application
9	17PER210	Vidula Vijay Kamble	Synthesis of Esters via an Environmentally Benign Route & Formulation of Jasmine Fragrance & its Applications	Synthesis & Application
10	17PER211	Ramrao Dnyanoba Khandare	Extraction of D-Limonene (Fragrance & Flavouring Compound) from the Citrus Industry Waste using Novel Technique- Ultrasound: Process Intensification Studies	Processing & Application

D	<u>M. Tech from Department of Flavours and Perfumery, Batch 2018</u>			
Sr. No.	Enrolment No	Student Name	Thesis Title	Broad Category of subject
1	18PER201	Amit uttam navale	Synthesis of trichloromethyl phenyl carbinol acetate	Synthesis, analysis
2	18PER202	Amol balu ugalmugale	Isolation of Allyl Isothicyanate from mustard seeds and its application in Perfumery and Flavours.	Isolation, analysis and application
3	18PER203	Anuradha rajendra shewale	Synthesis of allyl ethers by reusable catalyst, characterization and application in Flavour and Fragrance.	Synthesis, characterization and application
4	18PER204	Dinesh diliprao shinde	Study on cidal effect on fragrances foul odor and stability of fragrances.	Characterization, analysis study
5	18PER205	Joselin kirupa dorathy david	Synthesis of Ambreolide from shellac or lac resins.	Synthesis, analysis, application
6	18PER206	Kairavi devanand shinde	Development of new cosmetic product with the long lasting fragrance by utilization of Natural Ayurvedic Products. (Ubtan)	Development, application
7	18PER207	Mayuresh shankar khamgal	Synthesis of Flavour and Fragrance compound via Mixed Oxide supported Multimetal Catalyst Hydrogenation of Furfural to yield 2-methyl furan.	Synthesis, analysis and application
8	18PER208	Pravin sainath mogarkar	Extraction of oil from mahua seed. Extraction of sweetener from dried mahua flower.	Extraction, processing, optimization and application
9	18PER209	Prajapati sambhajirao gaikwad	Synthesis of Perfume compound from alkali fusion and pyrolysis of Castor oil.	Synthesis, analysis and application
10	18PER210	Prasad rajaram gaikwad	Studies in Process Flavour Development of Indian Traditional foods.	Product development, characterization
11	18PER211	Prasad ashok jitkar	Utilization of waste flowers for obtaining perfumery derivatives, incense sticks and cosmetic products.	Synthesis, extraction, isolation, application
12	18PER212	Radhika sanjay sonavane	Study of volatile constituents in Jeerakadyarishta.	Isolation, characterization
13	18PER213	Rama balaji gabale	Extraction of Allicin From Garlic By Different Methods and Study of Long Lasting Effect of Allicin In different Amplicons.	Extraction, analysis, application

14	18PER214	Rashmi ganesh tikhe	Novel odorants from renewable resources (Furfural).	Synthesis, isolation, analysis
15	18PER215	Sachin sangram minke	Bio-catalysis in synthesis of aroma compound.	Synthesis, analysis
16	18PER216	Srija das	Bio-synthesis of volatile aroma compounds by <i>Kluyveromyces marxianus</i> using cheese whey permeate as the carbon source.	Synthesis, characterization, analysis
17	18PER217	Sundarlakshmi venkatesh kumar	Creation of new blends for citrus.	Blending, characterization study aroma profiles
18	18PER218	Tejaswini madhukar ahire	Design vehicles for controlled release of flavour and fragrance.	Process development, characterization.

<u>E</u>	<u>M. Tech from Department of Flavours and Perfumery, Batch 2019</u>			
Sr. No.	Enrolment No	Student Name	Thesis Title	Broad Category of subject
1	19PER201	Damini Kishor Nerkar	Extraction of aromatic bioactive from <i>Foeniculum vulgare</i> using Three phase method and its application in perfumery and flavour.	Processing, Extraction & Application
2	19PER202	Aditya Sindhusagar Dhule	Design, Synthesis and odour evaluation of synthetic analogs of fragrance molecules.	Processing, Product development & analysis
3	19PER203	Eshan Raju Dhyade	Development of Processed Flavour.	Process study, analysis
4	19PER204	Gayatri Shivaji Dhere	Utilization of temple flower waste in preparation of value-added products.	Extraction, analysis, application.
5	19PER205	Hemlata Dudhnath Shukla	Extraction of orange oil from orange peels and its optimization.	Extraction , processing, process optimization
6	19PER206	Kalyani Machhindra Kute	Extraction of essential oil from temple waste flower and its application.	Extraction , processing, process optimization & application
7	19PER207	Kiran Bhagwan Avhad	Isomerisation of alpha pinene oxide by using heterogeneous catalyst.	Synthesis, analysis, optimization
8	19PER208	Mangesh Dilip Chaudhari	Enzymatic Aqueous Synthesis of Perfume Intermediates and its application.	Synthesis , analysis and application
9	19PER209	Namrata Ravindra Vaidya	Synthesis of Mood elevating compounds- Linalyl acetate and its derivatives.	Synthesis, analysis, application
10	19PER210	Pratik Sanjay Wakchaure	Development of Aromatic hair dye.	Processing, product development
11	19PER211	Swapnil Shivaji Pawar	Synthesis of Maltol and its derivatives.	Analysis, product development, synthesis and application
12	19PER212	Ruchika Sanjayrao Dapurkar	Utilization of floral waste for obtaining perfumery compounds and value-added products.	Extraction , processing, process optimization & application
13	19PER213	Shahidunnisha Mohammed Anis Choudhary	Enzymatic synthesis of menthol by immobilization method.	Synthesis , application

14	19PER214	Vishwanath Shirishkumar Solpure	Odour and Constitution: Synthesis of Homologs and Analogs of Vanillin.	Synthesis, analysis & product development
15	19PER215	Vidhita Ramchandra Une	Studies on water based fragrance.	Processing, analysis
16	19PER216	Vivek Janardan Kokate	Extraction of Aroma compounds from pandan leaves and characterization and formulation of the same.	Extraction, process optimization, characterization, analysis
17	19PER217	Vrushal Vijay Dalvi	Synthesis of Fragrance or Flavour compound using Phase-Transfer Catalysis.	Synthesis, process study, analysis
18	19PER218	Yohanah Sam Mathew	Studies on Spikenard (Indian Nard, Nardus Root)	Process study, characterization

F	<u>M. Tech from Department of Flavours and Perfumery, Batch 2020</u>			
Sr. No.	Enrolment No	Student Name	Thesis Title	Broad Category of subject
1)	20PER201	Ajit Ashok Satwadhar	Lipase Catalysed Synthesis of Flavor Esters.	Synthesis, Process Optimization.
2)	20PER202	Ashwin Nandkumar Mahajan	Extraction of star anise essential oil using deep eutectic solvent.	Extraction, analysis, application.
3)	20PER203	Bhushan Suryakant Chavan	Recent advancements in Isolation and Purification of actives from Natural Spices.	Process study, analysis
4)	20PER204	Chaitali Shailesh Garach	Use of Natural deep eutectic solvents for extraction of Cinnamon Oil.	Extraction, analysis, application.
5)	20PER205	Drushti Vishwas Kute	Lipase Catalysed Synthesis of Flavor Esters.	Synthesis, analysis, process optimization.
6)	20PER206	Firdous Fatema Mohammed Ayyub Rangrez	Synthesis of Fragrance molecules from 5-Hydroxymethyl furfural.	Synthesis, analysis.
7)	20PER207	Kalyani Dipak Auti	Encapsulation of fragrance/flavor compound.	Process study, process optimization, application.
8)	20PER208	Mahesh Vajinath Mitkari	Synthesis of Rose Crystal (fixative) and related compounds.	Analysis, product development, synthesis.
9)	20PER210	Prajakta Mahendra Pinjarkar	Production of Perfume and Flavor by fermentation route.	Process study, extraction, analysis, application.
10)	20PER211	Prajyoti Pratham Kale	Flavour Generation through Thermal Processing.	Process optimization, analysis, application.
11)	20PER212	Preeti Kamal Pradhan	Enzymatic Aqueous Synthesis of Perfume or Flavour intermediates and its application.	Analysis, product development, synthesis and application.
12)	20PER213	Riya Sudam Bhosale	Determination of Volatile Oil composition of Indian Valerian	Extraction, analysis, product application.
13)	20PER214	Shraddha Radhakisan Dighe	Determination of composition of volatile oil in Feronia spp.	Extraction, analysis, application.
14)	20PER215	Snehal Hiranman Dhokale	Antibacterial Perfume for sanitary napkins.	Process study, analysis, product development.
15)	20PER216	Sumit Ganesh Gundayya	Comparative studies on extraction if sustainable extraction techniques based on plant based material.	Process study, process optimization, extraction, analysis.

16)	20PER217	Vishweshwarayya Bhimappa Duggatti	Extraction of Ester (isoamyl butyrate) from banana peels.	Extraction, process optimization, characterization, analysis
17)	20PER218	Darshana Deelip Rode	Greener techniques of the extraction of essential oils via ball milling and application in health care products.	Extraction, process study, analysis, application.
18)	20PER219	Kakul Ravish Singole	Hydrogenation of Eugenol using graphene oxide based catalyst to give 4-propyl cyclohexanol.	Synthesis, analysis, characterization, process optimization.

- A steady improvement in quality of the project has been seen as it is evident from the gradually increasing average score of the students. The research project comp a students will be able to think and work independently. The process optimization, modelling, design and engineering component has been increased gradually in the project.
- Incorporation of more experimental design, various isolation, characterization and analysis using modern state-of the art instrument in the Research component include are facilitating the improvement.
- The thesis is thoroughly checked by two examiners (Internal and External) and it is being plagiarism checked prior to submission.

Details	Max. Marks	Internal Examiner	External examiner
Understanding of Research Area	70		
Problem formulation/Experimental design/Mathematical Modelling	70		
Quality of Work done	70		
Analysis and Interpretation of Results	70		
Quality of Thesis Submitted	70		
Quality of Presentation	70		
Answer to Question raised during OpenDefence	80		
Total	500		

Recommendation:

The M Tech thesis submitted by candidate is:

- Acceptable, may be regarded as final in present form.
- Acceptable, but with minor revisions.

1.2.3. Initiatives related to industry interaction including industry internship/summer training (10)

Insitute Marks 10.00

Students spend 15 weeks to 6 months in a company for in-plant training where they get a direct exposure of a company, their various products in the market, possible formulation of the product, ingredients, idea of product innovation, and product commercialization. Moreover, a student learns about the various processes for Major Products/ingredients (no confidential proprietary information may be included), Chemistry of processes/formulation (in case of innovation for new product) based on Journal papers, Patents, Books, etc., Safety and Health (Material Safety Data Sheets, Safety Policy), Environmental Protection (measures used and general description of the processes and facilities used).

They also get to learn management skills in corporate, time management, data analysis for consumer behavior on the commercial product. A student gets an opportunity to work under an industry mentor. After the end of the in-plant training tenure, a student submits a written report on the project assigned to them by the company to the institute.

The report consists of background of the project, details of the experiment performed, product design, and application, details of the product known in the market, formulation, techno-economic feasibility and finally analysis of data including conclusion. The project report was assessed based on writing skills including formatting as per given instruction.

Moreover, the student give a presentation on the work performed in the industry before the research mentor and other faculties of the department. The assessment of the presentation was done based on the presentation skill of the student and the ability of data analysis by the student. In addition, marks from the industry mentor also is collected and recommendation from the industry mentor is also considered for the final evaluation.

The in-plant training is evaluated of 450 marks and the rubrics for evaluation is given below,

Sr. No.	Details	Max Marks	Research mentor	External Examiner
1	Background of Project	25		
2	Experiment performed/Mathematical modelling if any/Design/Techno-economic feasibility/Analysis of data	125		
3	Conclusion	30		
4	Writing Skills including formatting as per given instruction	30		
5	Presentation based on the work perform and its analysis/Presentation Skills	90		
6	Marks Given by Industry Mentor	150		
	Total	450		

Details of M. Tech. Students went for internship in the Industry:

<u>M. Tech Perfumery and Flavour Technology- Batch of 2017-19</u>			
Sr. No	Student Name	Roll No.	Organization
1	Govind Suryakant Bhumbe	17PER201	DDS-TPM Flavours
2	Kishan Babu Velambath	17PER202	Symrise Pvt. Ltd.
3	Lubha Shailendra Deshmukh	17PER203	Oriental Aromatics Ltd.
4	Pradeep RajendraTandale	17PER204	Keva Flavours Pvt. Ltd.
5	Pratap ArjunraoKadam	17PER205	Oriental Aromatics Ltd.
6	Ranjeet Rohidas Jadhav	17PER206	DDS-TPM Flavours
7	Smrithi Sampathkumar	17PER207	Keva Flavours Pvt. Ltd.
8	Sushil Sanjay Chaudhari	17PER209	Symrise Pvt. Ltd.
9	Vidula Vijay Kamble	17PER210	Givaudan India Pvt. Ltd.
10	Ramrao Dnyanoba Khandare	17PER211	Mane India Pvt. Ltd.

<u>M. Tech Perfumery and Flavour Technology- Batch of 2018-20</u>			
Sr. No	Student Name	Roll Number	Organization
1	Amit Navale	18PER201	Givaudan India Pvt. Ltd.
2	Amol Ugalmugale	18PER202	Callisons Flavours (Ind) Pvt. Ltd.
3	Anuradha Shewale	18PER203	Givaudan India Pvt. Ltd.
4	Dinesh Shinde	18PER204	Sensient Flavours Pvt. Ltd.
5	Dorathy David	18PER205	Symrise Pvt. Ltd.
6	Kairavi Shinde	18PER206	Givaudan India Pvt. Ltd.
7	Mayuresh Khamgal	18PER207	Oriental Aromatics Pvt. Ltd.
8	Pravin Mogarkar	18PER208	Keva Flavours Pvt. Ltd.
9	Prajapati Gaikwad	18PER209	CPL Aromas Pvt. Ltd.
10	Prasad Gaikwad	18PER210	Keva Flavours Pvt. Ltd.
11	Prasad Jitkar	18PER211	CPL Aromas Pvt. Ltd.
12	Radhika Sonavane	18PER212	CPL Aromas Pvt. Ltd.
13	Rama Gabale	18PER213	Keva Flavours Pvt. Ltd.
14	Rashmi Tikhe	18PER214	Symrise Pvt. Ltd.
15	Sachin Minke	18PER215	Oriental Aromatics Pvt. Ltd.
16	Srija Das	18PER216	Callisons Flavours (Ind) Pvt. Ltd.
17	Sundarlakshmi Venkatesh	18PER217	Givaudan India Pvt. Ltd.
18	Tejaswini Ahire	18PER218	Loreal India Pvt. Ltd.

M. Tech Perfumery and Flavour Technology- Batch of 2019-21

Sr. No	Student Name	Roll Number	Organization
1	19PER201	Damini Kishor Nerkar	ICT, Thesis Project work
2	19PER202	Aditya Sindhusagar Dhule	ICT, Thesis Project work
3	19PER203	Eshan Raju Dhyade	ICT, Thesis Project work
4	19PER204	Gayatri Shivaji Dhere	ICT, Thesis Project work
5	19PER205	Hemlata Dudhnath Shukla	ICT, Thesis Project work
6	19PER206	Kalyani Machhindra Kute	ICT, Thesis Project work
7	19PER207	Kiran Bhagwan Avhad	ICT, Thesis Project work
8	19PER208	Mangesh Dilip Chaudhari	ICT, Thesis Project work
9	19PER209	Namrata Ravindra Vaidya	ICT, Thesis Project work
10	19PER210	Pratik Sanjay Wakchaure	ICT, Thesis Project work
11	19PER211	Swapnil Shivaji Pawar	ICT, Thesis Project work
12	19PER212	Ruchika Sanjayrao Dapurkar	ICT, Thesis Project work
13	19PER213	Shahidunnisha Mohammed Anis Choudhary	ICT, Thesis Project work
14	19PER214	Vishwanath Shirishkumar Solpure	ICT, Thesis Project work
15	19PER215	Vidhita Ramchandra Une	ICT, Thesis Project work
16	19PER216	Vivek Janardan Kokate	ICT, Thesis Project work
17	19PER217	Vrushal Vijay Dalvi	ICT, Thesis Project work
18	19PER218	Yohanah Sam Mathew	ICT, Thesis Project work

1.2.4. Participation of Industry professionals in curriculum development, as examiners, in major projects (10)

Institute Marks: 10.00

Industry Supported laboratories

Our laboratory is supported by a few industries,

- A. Colourtex Industries Pvt. Ltd.**
- B. Givaudan**
- C. IFF: International Flavors and Fragrances**
- D. Keva**
- E. Symrise**
- F. CPL Aromas**
- G. DDS-TPM Flavors Pvt. Ltd.**

Industry involvement in partial delivery of any regular courses for students

In each academic year of M tech Perfumery and Flavours technology faculty from industry takes the course:

- 1) Mr. Sunil Fatak- Flavorist at IFF (International Flavors and Fragrances) India Pvt. Ltd.
- 2) Dr. Sudhir Mestri- Senior Flavorist (Oral care at Symrise Asia Pacific Pvt. Ltd. 3) Mr. Parag Satoskar- Group CEO at Oriental Aromatics Ltd.
- 4) Mr. Vidula Birwadkar- Scent Design Group Manager at International Flavors and Fragrances
- 5) Mr. Dattanand Kanakdande- Creative Centre Manager- Scent, Singapore at International Flavors and Fragrances
- 6) Mr. Dhananjay Zope- Technical Manager (Operations) at Croda India Company Pvt. Ltd.
- 7) Mr. Shiva Prajapati- Flavourist at Givaudan
- 8) Mr. Subramanian Iyer- Senior Perfumer at Givaudan India
- 9) Mr. Amol Kulkarni- Senior Perfumer at CPL Aromas
- 10) Dr. Dilip Bedekar- Consultant to Food, Flavour, Ingredient, Fragrance, FMCG. Advising on M&A and Investment Opportunities
- 11) Dr. Sitaram Dixit - Independent Consultant for Fragrances, Home, Fabric & Personal Care Chemical Industry- CGSI

Industry involvement in thesis examination of students
List of examiners

Sr. No.	Name	Organisation
1	Dr. A. R. Mahulkar	Reliance Industries Ltd.- Team Lead
2	Dr. Satish Dasharath Shewale	Deepak Nitrite Ltd.- Chief Manager, ProcessEngineering-R&D
3	Dr. Y. V. V. Subrahmanyam	Petals Aromatics Pvt. Ltd.- Sr. Scientist
4	Dr. Dhananjay Dagadu Zope	Croda India Company Pvt. Ltd.- TechnicalManager (Operatiions)
5	Dr. P. L. Dhepe	National Chemical Laboratory, Pune
6	Dr. Sushilkumar A. Dubal	Vice President- Research & Development inFMCG & Perfumery
7	Dr. C .V. Rode	National Chemical Laboratory, Pune
8	Dr. Manoj Biswas	Keva Fragrances, Flavours & Aroma Ingredients- Deputy General Manager- Applications
9	Dr. Anal Pushkarna	Hindustan Unilever Ltd.- Sr. ProductDevelopment Manager
10	Dr. Aarti Gupta	UKA Tarsadia University, Gujarat
11	Dr. Neeta Shrivatsava	PERD Research Centre, Ahmedabad
12	Dr. Sitaram Dixit	Independent Consultant for Fragrances, Home, Fabric & Personal Care ChemicalIndustry- CGSI
13	Dr. Dilip Bedekar	Consultant to Food, Flavour, Ingredient, Fragrance, FMCG. Advising on M&A andInvestment Opportunities
14	Mr. Shiva Prajapati	Givaudan- Flavourist

Report on Training Programme/ Industrial Visits

Training Programme held at FFDC, Kannauj in the year 2016

Location: Fragrance & Flavour Development Centre (FFDC)

Ministry of MSME, Govt. of India

G. T. Road, Makrand Nagar, Kannauj – 209 726 (U. P.)

A Six days Training Programme named “Practical aspects on essential oils, fragrance and flavor” was organized between 26/09/2016 to 01/10/2016 for the students of MTech Perfumery & Flavor Technology, the FFDC is located in Kannauj, in Uttar Pradesh state of India. The institute is spread over a lush green campus which houses the administration building, Herbal Garden, Q Day 1st (26th September, 2016)

Day 1st (26th September, 2016)

We started our day with orientation programme in morning session in which we were introduced with faculties working in FFDC by Mr. S. V. Shukla (Director, FFDC), Mr. A. like Citronella, Vetiver, Black pepper, Sandal, Black Turmeric, Cardamom, Mehandi, Rose, Eucalyptus, Rosemary, Alpinia, Spearmint, Nagarmotha, Jasmin, Lilly, Peppermint.

In Afternoon session on the same day, we visited the different facilities available in the institute. We visited the Field distillation unit, Solvent Extraction Unit, Steam Distillation essential oils, fragrances & flavours. He told us the latest trends in perfumes as well as flavours. Also the current situation of fragrance and flavor industry.

Day 2nd (27th September, 2016)

Morning session started with lecture delivered by Mr. Kamlesh Kumar on Sources of natural raw materials & their production economics. He gave us the valuable information afternoon session we visited the Field Distillation Unit. Field Distillation Unit-

- Use-to carry out hydro distillation of aromatic plant material to extract essential oil.
- We also saw the ongoing hydro distillation of lemongrass to extract essential oil.

Mr. Nadeem Akbar gave us the lecture on Fundamentals of processing techniques in which he told the different extraction techniques used for the extraction of essential oil. & aromatherapy in which he awarded us with use of different essential oils in aromatherapy. Different therapeutic values of essential oils.

Day 3rd (28th September, 2016)

On the Third day of our training, the Nose test of all of us took place. Nose test took by Mr. Gynendra Singh, one of faculty from FFDC. In Nose test we smelt different synthsamples.

In afternoon session in the lecture given by Mr. Vilas Gedam, he gave us in detail information about solvent extraction unit. Also he showed us how actually the essential oil saw the steam distillation unit and fractional distillation unit used to isolate aroma constituents e.g- Citral from lemongrass, Citronellol from citronella oil, etc.

Day 4th (29th September, 2016)

On fourth day we carried out the hydro distillation of lemongrass to obtain essential oil in FDU i.e. Field Distillation Unit. It took 4-5 hrs. To obtain essential oil from it. Then we take while doing this reaction, etc.

13-Oct-1613-Oct-16 Quality control lab have instruments like Gas-Liquid Chromatograph, GC-MS, HPLC, Soxhlet Apparatus, Clevenger apparatus, Polarimeter, Refractometer essential oil for quality parameters like Refractive Index, Specific Gravity, Color, Flash point, Oil content in material, Optical rotation, etc.

Basics of blending of perfumery & aromatherapy was told us by Mr. Shukla in afternoon session.

Day 5th (30th September, 2016)

Morning session started with lecture from Mr. Gynendra Singh on Olfaction & classification of fragrant raw materials. In his lecture he first told us to smell different aroma chemical Mr. Shukla showed practically the fragrance creation. He provided us with one fragrance sample of which replicate was to be made. We made the rose fragrance which was

Day 6th (1st October, 2016)

Visit to a local farm was arranged by FFDC to aware us with cultivation, production, processing practices of some floral aromatic materials like Jasmin, Rose, etc. Also the extraction in which base oil used usually is sandalwood. They have given us the Rosewater Samples with one perfume sample.

Hair shampoo, skin cream was prepared by us there in fragrance application lab. The day ended with valedictory function in which we were provided with our certificates. The whole Programme was very beneficial for us because we actually saw everything we learn in our college.





Training Programme held in 2017-2018

Industrial Visit to IFF Fragrance Creative Center, Mumbai: June 2017.

A one day visit to IFF Fragrance Creative Centre, Mumbai was organized on June 2017. ICT Students from M. Tech Perfumery and Flavour Technology were allowed to closely observe the way one of World’s leading fragrance house works and to interact with the Fragrance creation and applications team of IFF.



Symposium on ‘Essential oil, Fragrance & Flavour at SIES, Navi Mumbai’



10 day workshop on 'Practical Aspects on Essential oil, Fragrance & Flavour at FFDC, Kannauj, UP'



Training Programme held in 2018-2019

Welcome by Mr. Kannan T. (Head Resources)

The first visit is initiated by welcome and introductory address by regulatory head of Symrise. He enlightened following points in his speech.

- History of company
- Establishment of Company
- Market value of company

Discussion session by Mr. Hari Krishnan (Director, Supply Chain)

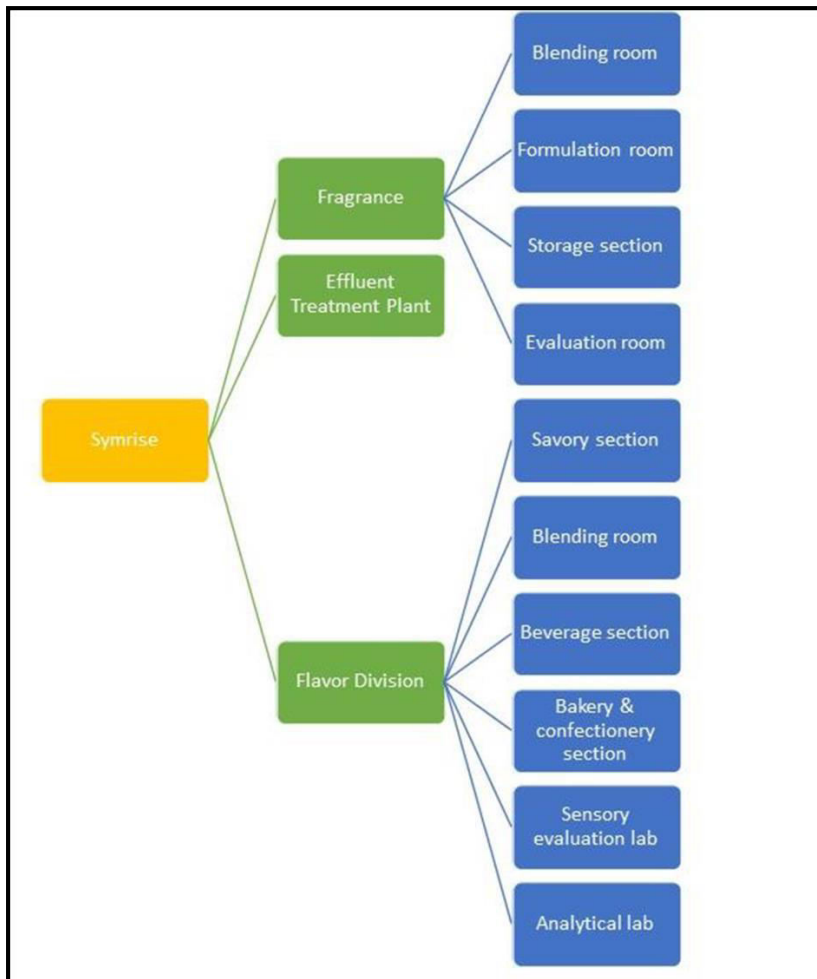
The introduction is then followed by detailed discussion carried out by Mr. Hari Krishnan head of fragrance division. He explained various aspects of company like raw material selection, business development, creation, formulation, blending, sampling, evaluation, marketing, storage, ETP, analytical study etc. Some major key points of discussion are highlighted below:

- Study & evaluation of customer requirement for customized products.
- Criteria for Raw material selection based on quality & price movement in last 2-3 years.
- Creation & formulation of samples according to need of customer.
- Process control parameters during sampling.
- Automatic bar code system for raw materials, samples & final products.
- Monthly reporting of worker efficiency in kg/ hr.
- Dealing with customers for finalization of products.
- Strategies of Stock maintenance for future batch preparation.
- Effects of sequence of addition of raw material during creation & formulation of product.
- Cleaning system for vessels & containers after product switch.

Smelling session

- For the study of sensory evaluation of raw material, practical sessions of smelling is conducted by industrial experts. They have explained how to identify descriptive notes of aroma compounds.

Florozone	Sandalwood oil	Synthetic sandalwood	Synthetic sandal wood
<ul style="list-style-type: none">• Citrus• Watery• Cucumber	<ul style="list-style-type: none">• Woody• Powdery• Sandal	<ul style="list-style-type: none">• Floral• Roselike• Honey	<ul style="list-style-type: none">• Woody• Spicy• Sandal





IFF
International Flavors & Fragrances

DAY 1: 27/03/2019

**Flavour
Unit**

“International Flavors and Fragrances Pvt. Ltd. India”

Address: 1-5, Seven Wells Street, St. Thomas Mount, Chennai, Tamil Nadu 600016.

About Company: International Flavors & Fragrances is an American corporation producing flavors and fragrances and cosmetic actives. It was formed in 1958 by the merger between Polak & Schwarz (P&S) and van Ameringen-Haebler. Polak & Schwarz was founded in 1889 by Leopold Schwarz, who had an interest in spices, flavors, and fragrances, and his brother-in-law, Joseph Polak in the small Dutch town of Zuydam. IFF was recognized as one of the top green companies in the U.S. in the 2016 Newsweek Green Rankings and named on Barron's 100 Most Sustainable Companies List in 2018.

- > Revenue- US\$3.4 B (Market Cap: US\$11B)
- > Products: Flavors, fragrances and cosmetic active ingredients.
- > Headquarter: New York city, U.S
- > Listed on NYSE since 1964; Member of S&P 500
- > Serving 3,000 customers in 182 countries

Welcome by Mr. Arun Kumar S. (HR Manager)

Visit initiated with warm welcome and introductory speech by Mr. Arun kumar S. (HR Manager) of IFF Chennai. He gives following brief to students,

- History of company
- Growth of company
- Market share of company

Presentation session by Dr. P. Ramesh Babu (Manager QA)

After the introductory speech, Dr. P. Ramesh Babu gave detailed presentation of flavours creation and application with question answer session with us. He covered following points in his presentation.

- Various IFF plants in India with their specific specialty.
- Application of flavours in Various FMCG products.
- About IFF policy.
- Creativity and Technology by following the system.
- Types of flavors with their advantages and disadvantages in food application. (Liquid, spray dried, emulsion, dry mixes).
- Food colors and types of caramels used in beverages.
- Reaction flavour and its creation.
- Third party units with their specialty.
 1. Tolling Dry Tech. – Spray drying.
 2. Prisha – Agglomerates (emulsion).
 3. LBN/MFC – Food color.
- Global customer of IFF.
- IFF strategy.
- 468 International patents in 2018 by IFF.

Sessions include:

- Flavor Smelling Session
- Visit to Production Unit
- Production Unit
- Analytical Lab and Quality Control
- Sensory Lab
- Theosophical society
- Aurobindo Ashram- Auroshikha
- Botanical Garden
- AUROVILLE FRENCH BAKERY
- Kalki Boutique

1.2.5. Quality of laboratory work given (20)

Institute Marks: 20.00

Laboratory work comprises of experimental work and assignments. The experiments to be conducted in the laboratories have been well defined and the lab manuals have been provided to the students. The students are grouped in pairs to conduct the experiments which allow them to learn independently. The results are discussed in the class.

The list of experiments:

Exp. No.	Name of experiment
SEM 1 – Olfaction and Sensory Evaluation	
1.	Identification and Evaluation of different odour families
2.	Identification and evaluation of alcohol family
3.	Identification and evaluation of aldehyde family
4.	To study Triangle Test
5.	To study Duo-Trio test
6.	Identification and evaluation of ester family
7.	Identification and evaluation Jean-Carle's Triangle
8.	Identification and evaluation of essential oil and their major active compound
9.	Identification and evaluation of ketone family
10.	Study and evaluation of acid family
11.	Study and evaluation of sulphur compounds
12.	Study and application of different flavours
SEM 2 – Blending and creation for fragrance and flavours	
1.	Dilution study
2.	Evaluation of marked product
3.	Evaluation of marked product (detergent)
4.	Study of formulations and evaluation of fragrances family
5.	Study of formulations and evaluation of chypre olfactive family
6.	Study of formulations and evaluation of essential oil
7.	Study of formulations and evaluation of flavours
8.	Study the flavour dilution at various dilution in suitable solvent
9.	Study the fragrances and flavour regulations
10.	To evaluate and study market product (flavour)
Cosmetic formulation	
1.	Antidandruff Shampoo
2.	Hair dressing cream

3.	After shave lotion
4.	Leather shaving cream
5.	Cleansing milk
6.	Foundation lotion
7.	Eye shadow
8.	Lipstick
9.	Nail lacquer
10.	Face Scrub
11.	Vanishing cream
12.	Non medicated toothpaste
13.	Mouthwash
Extraction, Separation, Isolation, purification	
1.	Extraction of citrus oil by hard sponge method
2.	Extraction of citrus oil by steam distillation method
3.	Extraction of citrus oil hydro-diffusion method
4.	Extraction of mint oil by the steam distillation
5.	Separate clove oil from clove by using hydro distillation
6.	Isolation of eugenol from clove oil
7.	Synthesis of wintergreen oil from salicylic acid
8.	Synthesis of methyl butyrate from butyric acid

Specific Features of Lab Experiments

- Each practical is performed in a group of two students with at least 9 different types of samples (formulations or treatment conditions)
- The data analysis is performed together (all data together for optimization purpose)
- The students submit lab notebook (journal) for each experiment.
- For each experiments the students write: Background/ Relevance, Experimental design/method, Observations, Results, and Inference.

2.PROGRAM OUTCOME (75)**TOTAL MARKS: 75.00****2.1. Establish the connect between the courses and POs (15)****Institute Marks: 15.00**

POs	Statement	Courses
PO1	An ability to independently carry out research /investigation and development work to solve practical problems	PFT103, PFP003, PFT108, PFP002,PFP004, PFP005, PFP006
PO2	An ability to write and present a substantial technical report/document	PFP002, PFP003, PFP004, PFP005, PFP006
PO3	Students should be able to demonstrate a degree of mastery over the area as per the specialization of the program. The mastery should be at a level higher than the requirements in the appropriate bachelor program.	PFT101, PFT102, PFT103, PFP001, PFT104, PFT007, PFT009, PFT013, PFT012, PFT112, PFP002
PO4	The graduates will be able to apply knowledge of basic sciences of fragrance and flavors and engineering courses in getting solutions to science and technology addition, the graduate will be acquainted with the latest development on the subject, So should be able to profess as a researcher either take up higher studies, research & developmental work or entrepreneur.	PFT005, PFT008, PFP004,PFT108, PFT112, PFP005, PFP006

2.2. Attainment of Program Outcomes (60)

Total Marks: 60.00

2.2.1. Describe the assessment tools and processes used to gather the data upon which the evaluation of Program Outcome is based (20)

Institute Marks: 20.00

ASSESSMENT TOOLS	
Direct survey	
Exams	
Assignments	Alumni / Examiner Feedback
Projects	
Tutorials	Exit Survey
Labs	

Calculation of Course Outcome (CO)

Assessment tools used to measure the student learning and Course Outcomes:

- End Semester exam: End Semester Score (25 M)
- Continuous Evaluation: Score for Continuous assessments (10 M) and Mid sem Examination (15 M)

The process adopted to map the assess the course outcomes

The assessment of the course outcomes (COs) have been performed by subject specialists. The corresponding steps have been discussed below.

- Step I: Percentage weightage (W) has been given to each of the COs of a course corresponding to each question asked in end semester question paper.
- Step II: Matrix showing Question wise marks for each student.
- Step III: Calculation of CO Wise score from Question wise marks. It is calculated as follows

$$\begin{aligned}
 S_{CO_i} &= \sum_{i=1}^5 \sum_{j=1}^{10} \sum_{k=1}^5 S_{Q_{kj}} \times W_{iQk} \\
 &= S_{Q_{1j}} \times W_{iQ1} + S_{Q_{2j}} \times W_{iQ2} + S_{Q_{3j}} \times W_{iQ3} + S_{Q_{4j}} \times W_{iQ4} + S_{Q_{5j}} \times W_{iQ5} \\
 s_{CO_i} &= \frac{1}{j} \left(\sum_{j=1}^{10} S_{CO_i} \right)
 \end{aligned}$$

Where, W_{iQk} =percent weightage given to i^{th} CO corresponding to k^{th} question (Q_k);

S_{Qkj} = Score obtained by j^{th} student corresponding to k^{th} question (Q_k)

S_{COij} = Score obtained by j^{th} student corresponding to i^{th} CO

S^{COi} =Average of S^{COij} obtained for the entire class corresponding to COi

Step IV: Counting % of students (m) scoring at least class average score of corresponding to COi.

If % of student scoring at least class average (m)	Attainment assigned to ai
$m \geq 60\%$	3
$50\% \leq m \leq 59\%$	2
$40\% \leq m \leq 49\%$	1

Step V: Steps I to IV are followed for Continuous evaluation and Mid Semester marks.

Step VI: Calculation of Attainment of CO, as given below.

$$A_{CO_i} = a_{iES} \times w_{ES} + a_{iCA} \times w_{CA}$$

Where, a_{iES} =Attainment assigned to i^{th} CO from End Semester Marks;

w_{ES} =Weightage of Attainment from End Semester marks = 0.8;

a_{iCA} =Attainment assigned to i^{th} CO from Continuous + Mid Semester

Marks; w_{CA} =Weightage of Attainment from Continuous + Mid Semester

Marks = 0.2;

Step VII: Calculation of Attainment of Course (A course), as given below.

$$A_{course} = \frac{A_{CO1} + A_{CO2} + A_{CO3} + A_{CO4}}{4}$$

2.2.2 POs attainment levels with observations (40)

Institute Marks: 40.00

			16PER Batch		PO1			PO2			PO3			PO4		
					Weightage	CO Attainment	Avg. CO Attainment	Weightage	CO Attainment	Avg. CO Attainment	Weightage	CO Attainment	Avg. CO Attainment	Weightage	CO Attainment	Avg. CO Attainment
DIRECT	Sem I	PFT 2001	Chemistry of Perfumes and Flavours	K 6	3	1.7	2.26	3	1.7	2.23	3	1.7	2.26	3	1.7	2.23
		PFT 2002	Perfumery and Flavour Technology	K 5	2	1.7		2	1.7		2	1.7				
		PFT 2003	Fragrance and Flavour Formulation	K 6	3	2.3		3	2.3		3	2.3				
		PFP 2016	Seminar	K 6	3	3		2	3		3	3				
		PFP 2001	Critical Review	K 5	3	3		2	3		3	3				
	Sem II	PFT 2007	Natural Products for Fragrance and Flavours	K 3	2	2.3		2	2.3		2	2.3				
		PFT 2102	Marketing Management and Customer Behaviour	K 5	3	2.5		3	2.5		3	2.5				
		PFT 2812	Cosmetic Chemistry and technology	K 5	3	2.2		2	2.2		3	2.2				
		PFP 2003	Literature Review of the Proposed Research Topic	K 6	3	3		2	3		3	3				
	Sem III	PFP	Research Project Mid Term Evaluation	K 6	3	2		3	2		3	2				
Sem IV	PFT	Thesis	K 6	3	3	3	3	3	3							

	Elev tions	PFT 2006	Cosmetic Basics	K 6	3	1.8		2	1.8		3	1.8		2	1.8	
		PFT 2005	Analytical Chemistry and Quality Control Techniques	K 5	3	2.2		3	2.2		3	2.2		3	2.2	
		PFT 2802	Technology & Science of Essential Oils	K 5	3	1.9		2	1.9		3	1.9		2	1.9	
		PFT 2013	Separation Process in Perfumes and Flavour Industry	K 5	2	1.9		2	1.9		2	1.9		2	1.9	
		PFT 2012	Synthetic Perfumes and Flavour Chemistry	K 5	2	1		2	1		2	1		2	1	
			TOTAL			44			38			44			38	
INDIRECT	Survey I		Student Feedback			2.3	2.40		2.4	2.50		2	2.10		2.7	2.55
	Survey II		Alumni or Examiner Feedback			2.5			2.60			2.20			2.40	
						PO1 Attainment	2.29		PO2 Attainment	2.28		PO3 Attainment	2.23		PO4 Attainment	2.29
						% PO1 Attainment	76.32		% PO2 Attainment	76.04		% PO3 Attainment	74.32		% PO4 Attainment	76.37

			17PER Batch		PO1			PO2			PO3			PO4		
					Weightage	CO Attainment	Avg. CO Attainment	Weightage	CO Attainment	Avg. CO Attainment	Weightage	CO Attainment	Avg. CO Attainment	Weightage	CO Attainment	Avg. CO Attainment
DIRECT	Sem I	PFT 2101	Chemistry of Ingredients in Fragrance and Flavours	K6	3	2	2.44	3	2	2.45	3	2	2.44	3	2	2.45
		PFT 2102	Technology of fragrance and Flavour	K5	2	2.73		2	2.73		2	2.73		2	2.73	
		PFT 2103	Creation of Fragrance and Flavour	K6	3	2.2		3	2.2		3	2.2		3	2.2	
		PFP 2002	Seminar and Critical Review	K6	3	2		2	2		3	2		2	2	
		PFP 2001	Olfactory and sensory education	K5	3	2		2	2		3	2		2	2	
		PFP2003	Research 1	K6	3	3		2	3		3	3		2	3	
	Sem II	PFT 2007	Natural Products for Fragrance and Flavours	K3	2	2.47		2	2.47		3	2.47		2	2.47	
		PFT 2008	Marketing Management and Customer Behaviour	K5	3	1.73		3	1.73		2	1.73		3	1.73	
		PFT 2108	Application of Fragrance and Flavours	K5	3	2.47		2	2.47		2	2.47		2	2.47	
		PFP 2002	Blending and Creation for Fragrance and Flavours	K5	2	3		2	3		3	3		2	3	

		PFP 2004	Research 2	K5	2	3		2	3		3	3		2	3	
	Sem III	PFP 005	In Plant Training	K6	3	3		3	3		3	3		3	3	
	Sem IV	PFT 2005	project 4 Research	K6	3	3		3	3		3	3		3	3	
	Elev tives	PFT 2104	Cosmetic chemistry and technology	K6	3	2.53		2	2.53		3	2.53		2	2.53	
		PFT 2005	Analytical Chemistry and Quality Control Techniques	K5	3	2.73		3	2.73		3	2.73		3	2.73	
		PFT 2009	Technology & Science of Essential Oils	K5	3	2.2		2	2.2		3	2.2		2	2.2	
		PFT 2013	Separation Process in Perfumes and Flavour Industry	K5	2	1.53		2	1.53		2	1.53		2	1.53	
			TOTAL		46			40			46			40		
INDIRECT	Surv ey I		Student Feedback			2.70	2.55		2.50	2.55		2	2.30		2.40	2.50
	Surv ey II		Alumni or Examiner Feedback			2.40			2.60			2.60			2.60	
						PO1 Attainment	2.46		PO2 Attainment	2.47		PO3 Attainment	2.41		PO4 Attainment	2.46
						% PO1 Attainment	81.97		% PO2 Attainment	82.24		% PO3 Attainment	80.30		% PO4 Attainment	81.91

			18PER Batch		PO1			PO2			PO3			PO4		
					Weightage	CO Attainment	Avg. CO Attainment	Weightage	CO Attainment	Avg. CO Attainment	Weightage	CO Attainment	Avg. CO Attainment	Weightage	CO Attainment	Avg. CO Attainment
DIRECT	Sem I	PFT 2101	Chemistry of Ingredients in Fragrance and Flavours	K 6	3	2.2	2.40	3	2.2	2.43	3	2.2	2.40	3	2.2	2.33
		PFT 2102	Technology of fragrance and Flavour	K 5	2	2.47		2	2.47		2	2.47				
		PFT 2103	Creation of Fragrance and Flavour	K 6	3	2.53		3	2.53		3	2.53				
		PFP 2002	Seminar and Critical Review	K 6	3	3		2	3		3	3				
		PFP 2001	Olfactory and sensory education	K 5	3	1		2	1		3	1				
		PFP2003	Research 1	K 6	3	3		2	3		3	3				
	Sem II	PFT 2007	Natural Products for Fragrance and Flavours	K 3	2	2.20		2	2.20		2	2.20				
		PFT 2008	Marketing Management and Customer Behaviour	K 5	3	2.80		3	2.80		3	2.80				
		PFT 2108	Application of Fragrance and Flavours	K 5	3	2.47		2	2.47		3	2.47				
		PFP 2002	Blending and Creation for Fragrance and Flavours	K 5	2	3.00		2	3.00		2	3.00				
	PFP 2004	Research 2	K 5	2	2.00	2	2.00	2	2.00							

	Sem III	PFP 2005	In Plant Training	K 6	3	3.00		3	3.00		3	3.00		3	3.00	
	Sem IV	PFT 2005	project 4 Research	K 6	3	3.00		3	3.00		3	3.00		3	3.00	
	Elevti ves	PFT 2104	Cosmetic chemistry and technology	K 6	3	1.73		2	1.73		3	1.73		2	1.73	
		PFT 2005	Analytical Chemistry and Quality Control Techniques	K 5	3	2.73		3	2.73		3	2.73		3	2.73	
		PFT 2009	Technology & Science of Essential Oils	K 5	3	1.67		2	1.67		3	1.67		2	1.67	
		PFT 2013	Separation Process in Perfumes and Flavour Industry	K 5	2	1.73		2	1.73		2	1.73		2	1.73	
			TOTAL		46			40			46			34		
INDIRECT	Survey I		Student Feedback			3	3		2	2		2	2		3	2.50
	Survey II		Alumni or Examiner Feedback			3			2			2			2	
						PO1 Attainment	2.52		PO2 Attainment	2.35		PO3 Attainment	2.32		PO4 Attainment	2.37
						% PO1 Attainment	83.88		% PO2 Attainment	78.21		% PO3 Attainment	77.21		% PO4 Attainment	78.88

			19PER Batch		PO1			PO2			PO3			PO4		
					Weightage	CO Attainment		Weightage	CO Attainment	Avg. CO Attainment	Weightage	CO Attainment	Avg. CO Attainment	Weightage	CO Attainment	Avg. CO Attainment
DIRECT	Sem I	PFT 2101	Chemistry of Ingredients in Fragrance and Flavours	K 6	3	2.53	2.36	3	2.53	2.30	3	2.53	2.36	3	2.53	2.30
		PFT 2102	Technology of fragrance and Flavour	K 5	2	2.73		2	2.73		2	2.73		2	2.73	
		PFT 2103	Creation of Fragrance and Flavour	K 6	3	3		3	3		3	3		3	3	
		PFP 2002	Seminar and Critical Review	K 6	3	3		2	3		3	3		2	3	
		PFP 2001	Olfactory and sensory education	K 5	3	3		2	3		3	3		2	3	
		PFP 2003	Research 1	K 6	3	3		2	3		3	3		2	3	
	Sem II	PFT 2007	Natural Products for Fragrance and Flavours	K 3	2	2.46		2	2.46		2	2.46		2	2.46	
		PFT 2008	Marketing Management and Customer Behaviour	K 5	3	2.73		3	2.73		3	2.73		3	2.73	
		PFT 2108	Application of Fragrance and Flavours	K 5	3	2.46		2	2.46		3	2.46		2	2.46	
		PFP 2002	Blending and Creation for Fragrance and Flavours	K 5	2	3.00		2	3.00		2	3.00		2	3.00	

		PFP 2004	Research 2	K 5	2	3.00		2	3.00		2	3.00		2	3.00	
	Sem III	PFP 2005	In Plant Training	K 6	3			3			3			3		
	Sem IV	PFT 2005	project 4 Research	K 6	3			3			3			3		
	Elevtives	PFT 2104	Cosmetic chemistry and technology	K 6	3	2.46		2	2.46		3	2.46		2	2.46	
		PFT 2005	Analytical Chemistry and Quality Control Techniques	K 5	3	2.40		3	2.40		3	2.40		3	2.40	
		PFT 2009	Technology & Science of Essential Oils	K 5	3	2.46		2	2.46		3	2.46		2	2.46	
		PFT 2013	Separation Process in Perfumes and Flavour Industry	K 5	2	2.46		2	2.46		2	2.46		2	2.46	
			TOTAL		46			40			46			40		
INDIRECT	Survey I		Student Feedback			3	3		3	3		3	3		3	3
	Survey II		Alumni or Examiner Feedback			3			3			3			3	
						PO1 Attainment	2.49		PO2 Attainment	2.44		PO3 Attainment	2.49		PO4 Attainment	2.44
						% PO1 Attainment	82.85		% PO2 Attainment	81.36		% PO3 Attainment	82.85		% PO4 Attainment	81.36

			20PER Batch		PO1			PO 2			PO 3			PO4		
					Weightage	CO Attainment	Avg. CO Attainment	Weightage	CO Attainment	Avg. CO Attainment	Weightage	CO Attainment	Avg. CO Attainment	Weightage	CO Attainment	Avg. CO Attainment
DIRECT	Sem I	PFT 2101	Chemistry of Ingredients in Fragrance and Flavours	K 6	3	2.46	2.06	3	2.46	2.04	3	2.46	2.06	3	2.46	2.04
		PFT 2102	Technology of fragrance and Flavour	K 5	2	2.46		2	2.46		2	2.46		2	2.46	
		PFT 2103	Creation of Fragrance and Flavour	K 6	3	2.2		3	2.2		3	2.2		3	2.2	
		PFP 2002	Seminar and Critical Review	K 6	3	2		2	2		3	2		2	2	
		PFP 2001	Olfactory and sensory education	K 5	3	2		2	2		3	2		2	2	
		PFP 2003	Research 1	K 6	3	2		2	2		3	2		2	2	
	Sem II	PFT 2007	Natural Products for Fragrance and Flavours	K 3	2	2.80		2	2.80		2	2.80		2	2.80	
		PFT 2008	Marketing Management and Customer Behaviour	K 5	3	2.73		3	2.73		3	2.73		3	2.73	
		PFT 2108	Application of Fragrance and Flavours	K 5	3	2.26		2	2.26		3	2.26		2	2.26	
		PFP 2002	Blending and Creation for Fragrance and Flavours	K 5	2	3.00		2	3.00		2	3.00		2	3.00	
	PFP 2004	Research 2	K 5	2	2.00	2	2.00	2	2.00	2	2.00					

	Sem III	PFP 2005	In Plant Training	K 6	3			3			3			3		
	Sem IV	PFT 2005	project 4 Research	K 6	3			3			3			3		
	Elevt ives	PFT 2104	Cosmetic chemistry and technology	K 6	3	2.40		2	2.40		3	2.40		2	2.40	
		PFT 2005	Analytical Chemistry and Quality Control Techniques	K 5	3	2.73		3	2.73		3	2.73		3	2.73	
		PFT 2009	Technology & Science of Essential Oils	K 5	3	2.46		2	2.46		3	2.46		2	2.46	
		PFT 2013	Separation Process in Perfumes and Flavour Industry	K 5	2	2.26		2	2.26		2	2.26		2	2.26	
			TOTAL		46			40			46			40		
INDIRECT	Survey I		Student Feedback			3	3		3	3		3	3		3	
	Survey II		Alumni or Examiner Feedback			3			3			3			3	
						PO1 Attainme nt	2.25		PO2 Attainme nt	2.23		PO3 Attainme nt	2.25		PO4 Attai nme nt	2.23
						% PO1 Attainme nt	74.94		% PO2 Attainme nt	74.43		% PO3 Attainme nt	74.93		% PO4 Attai nme nt	74.43

POs Attainment

Course	PO1	PO2	PO3	PO4
PFT101	3	3	3	3
PFT102	3	3	3	3
PFT103	3	3	3	3
PFPO02	3	2	3	2
PFPO01	2	1	2	1
PFPO03	3	3	3	3
PFT007	2	2	2	2
PFT008	3	3	3	3
PFT108	3	2	3	3
PFPOO 2	3	3	3	3
PFPO04	2	2	2	2
PFPO05	3	3	3	3
PFPO06	3	3	3	3
PFT104	3	3	3	3
PFT005	3	3	3	3
PFPO09	2	2	2	2
PFT013	2	2	2	2

Attainment Level

Direct attainment weightage(in numbers from 1 to 100)		Indirect attainment weightage			
80		20			
Course	PO1	PO2	PO3	PO4	
Direct Attainment	2.71	2.53	2.71	2.59	
Indirect Attainment	3	2	2	3	
PO Attainment	2.77	2.42	2.57	2.67	

3. STUDENTS' PERFORMANCE (75)**TOTAL MARKS: 75.00****TABLE: 3.1**

Item (Information to be provided cumulatively for all the shifts with explicit headings, wherever applicable)	2020-21 (CAY)	2019-20 (CAY)	2018-19 (LYG)	2017-18 (LYGM1)	2016-17 (LYGM2)	2015-16 (LYGM3)
Sanctioned intake of the program (N)	20	20	20	20	18	18
Total number of students admitted through GATE (N1)	3	4	2	0	0	0
Total number of students admitted through PG Entrance and others (N2)	15	14	16	10	10	0
Total number of students admitted in the programme (N1 + N2)	18	18	18	10	10	7

TABLE: 3.2

YEAR OF ENTRY	N1 + N2 (AS DEFINED ABOVE)	NUMBER OF STUDENTS WHO HAVE SUCCESSFULLY GRADUATED	
		I YEAR	II YEAR
2020-21 (CAY)	18	18	
2019-20 (CAY)	18	18	
2018-19 (LYG)	18	18	18
2017-18 (LYGM1)	10	10	10
2016-17 (LYGM2)	10	10	10
2015-16 (LYGM3)	7	7	7

3.1. ENROLLMENT RATIO THROUGH GATE (20)**TOTAL MARKS 0.00****INSTITUTE MARKS 0.0**

	N (FROM TABLE 3.1)	N1 (FROM TABLE 3.1)	ENROLLMENT RATIO [(N1/N)*100]
2020-21 (CAY)	20	3	15
2019-20 (CAY)	20	4	20
2018-19 (LYG)	20	2	10

AVERAGE [(ER1 + ER2 + ER3) / 3] : 15.00

ASSESSMENT: 0.00

3.2. SUCCESS RATE IN THE STIPULATED PERIOD OF THE PROGRAM (20)**INSTITUTE MARKS: 20**

ITEM	CURRENT ASSESSMENT YEAR, CAY(2021-22)	CURRENT ASSESSMENT YEAR, CAY(2020-21)	CURRENT ASSESSMENT YEAR, CAY(2019-20)	LATEST YEAR OF GRADUATION, LYG(2018-19)	LATEST YEAR OF GRADUATION MINUS 1, LYGM1(2017-18)	LATEST YEAR OF GRADUATION MINUS 2, LYGM2 (2016-17)
X NUMBER OF STUDENTS ADMITTED IN FIRST YEAR OF SAME BATCH	18	18	18	18	10	10
Y Number of students completing program in stipulated duration		18	18	18	10	10
SUCCESS INDEX [SI = Y / X]		1	1	1	1	1

AVERAGE SI [(SI1 + SI2 + SI3) / 3] : 1.00

ASSESSMENT [20 * AVERAGE SI] : 20.00

3.3. PLACEMENT, HIGHER STUDIES AND ENTREPRENEURSHIP (20)**TOTAL MARKS 20.00****INSTITUTE MARKS 20.00**

ITEM	CAY (2020-21)	CAY (2019-20)	LYG(2018-19)	LYGM1(2017-18)	LYGM2(2016-17)
TOTAL NO OF STUDENTS ADMITTED IN FIRST YEAR(N)	18.00	18.00	10.00	10.00	7.00
NO OF STUDENTS PLACED IN THE COMPANIES OR GOVERNMENT SECTOR(X)	0.00	15	10.00	10.00	7.00
NO. OF STUDENTS PURSUING PH.D. / JRF/ SRF(Y)	0.00	3	0.00	0.00	0.00
NO OF STUDENTS TURNED ENTERPRENEUR IN ENGINEERING/TECHNOLOGY (Z)	0.00	0.00	0.00	0.00	0.00
PLACEMENT INDEX [(X+Y+Z)/N] :	0.00	1.00	1.00	1.00	1.00

AVERAGE PLACEMENT [(P1 + P2 + P3)/3]

: 1.00 ASSESSMENT [20 * AVERAGE

PLACEMENT] : 20.00

Assessment Year : 2019-21 (LYGM1)

S.No	Student Name	Enrollment No	Employee Name
1.	19PER201	Damini Kishor Nerkar	perfumery trainee at Firmenich.
2.	19PER202	Aditya Sindhusagar Dhule	Management Trainee at UPL
3.	19PER203	Eshan Raju Dhyade	DDS-TPM
4.	19PER204	Gayatri Shivaji Dhere	Perfumer Trainee at Eagle Wings Enterprises LLP
5.	19PER205	Hemlata Dudhnath Shukla	Loreal
6.	19PER206	Kalyani Machhindra Kute	Loreal
7.	19PER207	Kiran Bhagwan Avhad	Higher study
8.	19PER208	Mangesh Dilip Chaudhari	Firmenich
9.	19PER209	Namrata Ravindra Vaidya	perfumery trainee at Firmenich.
10.	19PER210	Pratik Sanjay Wakchaure	Loreal
11.	19PER211	Swapnil Shivaji Pawar	R&D Scientist- Phyto Life Science Pvt. Ltd
12.	19PER212	Ruchika Sanjayrao Dapurkar	Loreal
13.	19PER213	Shahidunnisha Mohammed Anis Choudhary	Higher study
14.	19PER214	Vishwanath Shirishkumar Solpure	Fragrance Chemist at Parfyme Aromatics
15.	19PER215	Vidhita Ramchandra Une	IFF
16.	19PER216	Vivek Janardan Kokate	Higher study
17.	19PER217	Vrushal Vijay Dalvi	Perfumer Trainer at Eagle Wings Enterprises LLP.
18.	19PER218	Yohanah Sam Mathew	Management Trainee - Synthite Industries Pvt Ltd.

Sr. No.	Enrolment No	Student Name	Job info
1)	18PER201	Amit Uttam Navale	Firmenich Perfumery (Trainee)
2)	18PER202	Amol Balu Ugalmule	Pitambari Innovative Products (R&D Officer)
3)	18PER203	Anuradha Rajendra Shewale	Giavudan (Trainee)

4)	18PER204	Dinesh Diliprao Shinde	Keva- Fragrances, Flavours & Aroma Ingredients (Intern)
5)	18PER205	Joselin Kirupa Dorathy David	Firmenich (Intern)
6)	18PER206	Kairavi Devanand Shinde	(Analyst) Iyurved
7)	18PER207	Mayuresh Shankar Khamgal	Ultra International Limited (Trainee Flavourist)
8)	18PER208	Pravin Sainath Mogarkar	Keva- Fragrances, Flavours & Aroma Ingredients (Intern)
9)	18PER209	Prajapati Sambhajirao Gaikwad	CPL Aromas (Perfumery Assistant)
10)	18PER210	Prasad Rajaram Gaikwad	Norex flavour Pvt Ltd
11)	18PER211	Prasad Ashok Jitkar	CPL aroma
12)	18PER212	Radhika Sanjay Sonavane	IFF
13)	18PER213	Rama Balaji Gabale	Avon Flavours
14)	18PER214	Rashmi Ganesh Tikhe	Anant fragrance Pvt Ltd
15)	18PER215	Sachin sangram Minke	Oriental Aromatics
16)	18PER216	Srija das	Callisons
17)	18PER217	Sundarlakshmi Venkatesh Kumar	Givaudan
18)	18PER218	Tejaswini Madhukar Ahire	Himalaya drug company

Assessment Year : 2018-19 (LYG)

S.No	Student Name	Enrollment No	Employee name
1	Lubha Deshmukh	17PER203	Pitambari Innovative Products
2	Sushil Chaudhari	17PER209	IFF
3	Pradeep Tandale	17PER204	ICT
4	Govind Bhumbe	17PER201	Matrix Flavours and Fragrances
5	Kishan Velambath	17PER202	Symrise AG
6	Pratap Kadam	17PER205	Springfield Aromatics
7	Ramrao Khandare	17PER211	Sacheerome
8	Vidula Kamble	17PER210	JNS commodities and Specialties
9	Smrithi S.	17PER207	Kerry (MISA)
10	Ranjeet Jadhav	17PER206	DDS-TPM Flavour Pvt.ltd

Assessment Year : 2017-18 (LYGM1)

S.No	Student Name	Enrollment No	Employee Name
1	Aishwarya Patil	16PER201	Agilent Technologies
2	Dharmee Joshi	16PER203	IFF
3	Revathi Nair	16PER211	Rutgers
4	Harsha Datey	16PER204	Keva Flavours Pvt.ltd
5	Prachi Sadawarte	16PER205	Innovertus Nutrition Technologies India
6	Pravin Garule	16PER206	Symrise AG
7	Raghavendra Dharmadhikari	16PER207	Callisons
8	Sushant Davane	16PER210	Jean Neil House Fragrance and Flavours
9	Devanand Patre	16PER202	Agilent Technologies
10	Saurabh Ambure	16PER209	Iberchem India Pvt.ltd

Assessment Year : 2016-17 (LYGM2)

S.No	Student Name	Enrollment No	Employee Name
1	Surabhi Chaudhary	15PER2001	VKL Seasoning Pvt.Ltd
2	Vaibhav Patil	15PER2003	La Scenteur Fragrance Technologies Pvt.ltd
3	Akshada Thorat	15PER2005	Privi Speciality Chemicals Limited
4	Sania Karanjkar	15PER2004	IFF India
5	Prashant Hendre	15PER2007	Mane India Pvt.Ltd.
6	Radhika Karve	15PER2006	Keva-Fragrances, Flavours and Aroma Ingredients
7	Prachi Nagar	15PER2002	Tastemaster

3.4. Professional Activities (15)

TOTAL MARKS: 15.00

3.4.1. Student's participation in Professional societies/chapters and organizing engineering events, Extracurricular Activities(5)

INSTITUTE MARKS: 5.00

E-Cell

E-Cell ICT aims to enhance the outlook of students towards entrepreneurship, helping them convert their idea into business models or patents. We also aim to create a culture of creativity, innovation and entrepreneurship by organizing lectures, events and workshops on basic business prerequisites-finance, stock market, marketing, business communication and many others.



Vortex

Vortex is India's largest ChemFest combining a wide array of fields such as Chemical Engineering, Polymers and coatings, Dyes, Oils, Foods, Pharmacy & Pharmaceutical Technology, Biotechnology & Biological Sciences, Business, Management and fun general events. Vortex is unique in its scope and ideas.

Considering the stalwarts and leaders from industry and academia, representatives of industries and the brightest students from across a plethora of disciplines, Vortex expects a footfall of 7000 people.

The first edition of Vortex: The chemfest (2013) was a grand success. Having the tough task of replacing two of the most common terms in a chemical technology students' dictionary, Exergy for Undergraduates and YRC- YICC for Post Graduates, Vortex set a new landmark for chemistry related fests everywhere. Vortex (2013) was honoured with the BEST STUDENT CHAPTER AWARD by the iiche (Indian Institute of Chemical Engineers).

The following editions, Vortex 2014, Vortex 2015 and Vortex 2016 greatly added to the legacy by its

predecessor. With an increased number of participants and industries which it is associated with, Vortex has created a formidable reputation of delivering on every promise made to sponsors and participants alike. It has been praised by veterans and enjoyed thoroughly by participants. Vortex 2015 and Vortex 2018 received the highest form of support given by UNESCO to any non-profit organization – the UNESCO Patronage. Vortex has also received support and recognition from the Royal Society of Chemistry.

Bombay Technologist

The Bombay Technologist is the in-house peer reviewed research Journal of the Institute of Chemical Technology published semi-annually.

It was started in 1951, by the erstwhile Technological Association, the highest decision making student body of the institute. Professor K. Venkatraman, a pioneer in Chemical Technology himself, envisioned the concept of an in-house research journal run by the institute and thus laid the foundation of Bombay Technologist.

The Institute of Chemical Technology is itself an internationally renowned center for research. It churns out hundreds of quality research publications and numerous patents every year solely in Chemical Engineering and Technology. Such a distinction is enjoyed by few, globally.

Six decades later, there is no looking back. Over sixty volumes have been published since. The latest issue is Volume 64.

TEDx ICT Mumbai

TEDxICTMumbai is an event that is organised independently by the students of the Institute of Chemical Technology, Mumbai operated by an official license obtained by TED. The main purpose of conducting this event is to propagate new ideas, innovation and inventions.

As the world races towards innovating and making breakthrough discoveries in the field of science, technology, commerce and the arts, Institute of Chemical Technology, Mumbai also finds it important to expose its students to the ever-changing world around them. With this TEDxICTMumbaiendeavour, ICT plans to inculcate the spirit of sharing ideas, discovering new ways of looking at the way things happen, and promoting the path of innovation among the students. The world is a global village and ICT intends on making sure that its students are citizen of this new world.

In a world where the way we exchange, understand, and innovate in ways which are constantly evolving, TED and TEDx are great tools to interact with the world without having to travel around the world to do so. This makes information and ideas easier to access, enables collaborations between citizens of different countries and above all promotes the harmonious exchange of innovation, something that is the need of the hour in the 21st century.

Sportsaga

Sportsaga is the annual sports festival of ICT, Matunga. Currently being in its fifteenth edition, Sportsaga has grown to become one of the largest and most awaited sports festival where ardent sports personalities participate from all over the country. It provides a key platform for all the sports enthusiasts in an array of sports like cricket, volleyball, basketball, athletics, badminton and many more, creating an extraordinary spectacle of inimitable emphasis in sports talent. The event, embraced by remarkable presence of celebrated sports personalities and spirited audience, has always endeavored unwavering for attaining new zeniths in the pursuit of excellence and vibrancy. The 10 exhilarating days of Sportsaga have many reverberating experiences for participants and supporters, creating a lifetime of memories.

Manzar

Manzar is the annual cultural festival of the Institute of Chemical Technology (formerly UDCT), Mumbai. Incepted in 2007, it has grown to be one of the fastest growing festivals in Mumbai. With a footfall of close to 10,000 people growing each year, from 100 different colleges across Mumbai, Manzar is a vibrant festival organized by this premier research institution.

Specialties

Social Change, Fashion Shows, Arena Concerts, Cultural Dance Performances, Film Making, Photography, The Big Band Theory, Drama, Literary Arts, Workshops, and Bulls and Bears.

Manthan

Manthan, the Marathi Literary club was started in 1980's and is the oldest club that was introduced in Technological Association. Originally it was started as a club dedicated only for Marathi singing programs but over the period it covered a lot different aspects of Marathi literature. Along with these programs Manthan organizes different speeches and interviews of distinguished personalities who have succeeded in different fields. The club provides a platform to both experts and amateurs to participate in events, interact with great personalities and show their talents, qualities and aspirations. The club receives huge participation, huge support and a long lasting love from the students of ICT.

Co-Curricular Activities

HPCI: Home and Personal Care Ingredients India

The Home and Personal Care Ingredients Exhibition and Conference India is the only event in India focused on raw materials and techniques for the formulation of cosmetic and cleaning products. It brings forth a unique opportunity to learn about the innovative ingredients for formulating effective cosmetic and home care products. It is the place to meet peers face-to-face, experience and discuss the latest developments and identify innovative products and solutions. The exhibition presents companies from all over India as well as overseas, and ensures that there is something for everyone – exhibitors, visitors, Industry bodies and think-tanks and the media to take home.



Oil Technologists Association of India (OTAI)

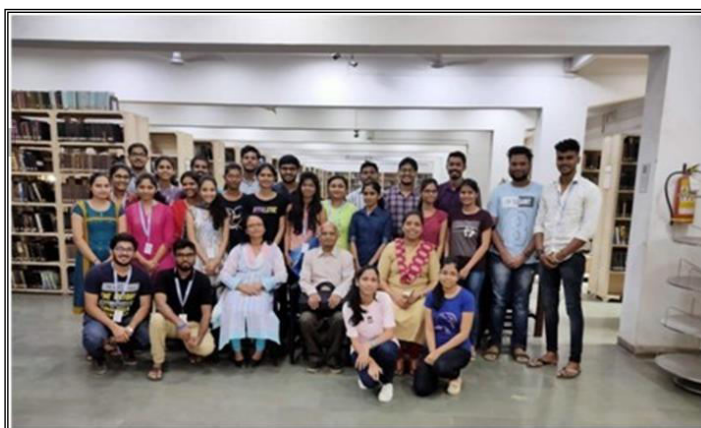
The Oil Technologists' Association of India (OTAI) was founded in 1943 and registered under the Societies Registration act XXI of 1860 in 1945. The Association has its own building for its Head Office on land donated by HBTI at Kanpur to coordinate National and International activities of its five Zones which function from different parts of the country. The Central Eastern, Northern, Southern and Western Zones operate from Kanpur, Calcutta, Delhi, Hyderabad and Mumbai respectively. The Association also publishes a quarterly scientific journal of the Oil Technologists' Association of India of International repute for almost last five decades.

The OTAI has been recognized by the Department of Science and Technology, Govt. of India, as a scientific and research organization devoted to promotion of R & D activities in the area of Oils, Fats and Derived Products. The Association is represented on various National Committees such as Central Committee of Food Standards, Development Council for Soaps and Detergents, different Committees of Bureau of India Standards.



Library Workshop

A two-day (Saturday 16th and 23rd Nov. 2019) workshop on "Effective ways to use E-resources" organized by Department of Dyestuff Technology, ICT in collaboration with Prof. M. M. Sharma Library, ICT for M. Tech students of Dyestuff Technology and M. Tech Perfumery and Flavor Technology. The workshop found out to be very useful for students as it covered all the aspects related to the Literature Survey; right from how to build a query and types of documents involved in research to use of proper research and reference management tools. The workshop concluded by a very informative session on Research Ethics by Mr. VivekPatkar, renowned Mathematician and Researcher.



3.4.2. Student's publications (10)

INSTITUTE MARKS: 10.00

1. Khandare, R. D.; Tomke, P. D.; Rathod, V. K. Kinetic Modeling and Process Intensification of Ultrasound-Assisted Extraction of d-Limonene Using Citrus Industry Waste. *Chem. Eng. Process. - Process Intensif.*2020, 108181. <https://doi.org/10.1016/j.cep.2020.108181>.
2. Prasad, B.; Gaikwad, R. Flavourings for Health , Wellness And Clean Label. 2020, No. September.
3. Tomke, P. D.; Zhao, X.; Chiplunkar, P. P.; Xu, B.; Wang, H.; Silva, C.; Rathod, V. K.; Cavaco-Paulo, A. Lipase-Ultrasound Assisted Synthesis of Polyesters.
4. *Ultrason. Sonochem.*2017, 38, 496–502. <https://doi.org/10.1016/j.ultsonch.2017.03.051>.
5. Tomke, P. D.; Rathod, V. K. Ultrasound Assisted Lipase Catalyzed Synthesis of Cinnamyl Acetate via Transesterification Reaction in a Solvent Free Medium. *Ultrason. Sonochem.*2015, 27, 241–246. <https://doi.org/10.1016/j.ultsonch.2015.04.022>.
6. Tomke, P. D.; Rathod, V. K. *Nanoengineering Tools in Beverage Industry*; Elsevier Inc., 2019. <https://doi.org/10.1016/B978-0-12-816677-2.00002-8>.
7. Tomke, P. D.; Rathod, V. K. Lipase-Catalyzed Synthesis of Propyl-Phenyl Acetate: A Kinetic and Thermodynamic Study. *Bioprocess Biosyst. Eng.*2020, 43
8. (9), 1659–1670. <https://doi.org/10.1007/s00449-020-02358-w>.
9. Tomke, P. D.; Rathod, V. K. Facile Fabrication of Silver on Magnetic Nanocomposite (Fe₃O₄@Chitosan –AgNP Nanocomposite) for Catalytic Reduction of Anthropogenic Pollutant and Agricultural Pathogens. *Int. J. Biol. Macromol.*2020, 149, 989–999. <https://doi.org/10.1016/j.ijbiomac.2020.01.183>.
10. Tomke, P. D.; Rathod, V. K. Enzyme as Biocatalyst for Synthesis of Octyl Ethanoate Using Acoustic Cavitation: Optimization and Kinetic Study. *Biocatal. Agric. Biotechnol.*2016, 7, 145–153. <https://doi.org/10.1016/j.bcab.2016.04.010>.
11. Tomke, P. D.; Rathod, V. K. Additionally Added Ingredients and Enrichment of Beverages: An Overview; Elsevier Inc., 2019. <https://doi.org/10.1016/b978-0-12-816687-1.00001-1>.
12. Tomke, P. D.; Rathod, V. K. A Novel Step towards Immobilization of Biocatalyst Using Agro Waste and Its Application for Ester Synthesis. *Int. J. Biol. Macromol.*2018, 117 (2017), 366–376. <https://doi.org/10.1016/j.ijbiomac.2018.05.005>.
13. Chiplunkar, P. P.; Zhao, X.; Tomke, P. D.; Noro, J.; Xu, B.; Wang, Q.; Silva, C.; Pratap, A. P.; Cavaco-Paulo, A. Ultrasound-Assisted Lipase Catalyzed Hydrolysis of Aspirin Methyl Ester. *Ultrason. Sonochem.*2018, 40, 587–593. <https://doi.org/10.1016/j.ultsonch.2017.08.004>.

4. Faculty Contributions (75)

TOTAL MARKS: 75.00

Sr No	Name	PAN No.	University Degree	Date of Receiving Degree	Area of Specialisation	Research Paper Publications	Ph.D Guidance	Ph.D granted during Assessment Year	Current Designation	Date (Designated as Prof/Asso s. Prof.)	Initial Date of Joining
01	Ganapati Shankarling	AEJPG9402M	ME/M.Tech and PhD	01/08/2000	Dyestuff and Technology, Perfumery and Flavors	124	20	1	Professor	20/02/2012	20/02/2000
02	Satyajit Saha	CZGPS2122A	MSc and PhD	28/05/2011	Organic Chemistry and Dyestuff Technology	25	1	1	Assistant Professor		02/02/2015
03	Surajit Some	CBOPS0582E	M.Sc. and PhD	17/03/2008	Organic Chemistry and Dyestuff Technology	58	3	3	Assistant Professor		17/09/2014
04	Nagaiyan Sekar	AAYP6215K	ME/M.Tech and PhD	01/02/1988	Dyestuff Technology	542	28	8	Professor	28/07/2008	17/02/1988
05	Nabanita Sadhukhan	BHYP6309C	M.Sc and PhD	14/12/2009	Dyestuff Technology and Perfumery and Flavors	17	1	0	Assistant Professor		01/04/2016
06	Uday S. Annature	AGDPA0605L	ME/M. Tech and PhD	29/09/2000	Food Technology, Flavors and Perfumery	114	15	2	Professor	16/04/2009	16/04/2003

07	Amit Pratap	AMAPP4724E	ME/M. Tech and PhD	29/12 /2006	Technology of Oils and Fats, Waxes and Lubricants, Perfumery and Flavours	55	11	03	Professor	29/12/2015	29/12/2003
08	Shreerang V. Joshi	AAGPJ5508A	ME/M. Tech and PhD	31/10 /1990	Pharmaceutic al Technology, Perfumery and Flavours	04	0	0	Professor	04/04/2016	04/04/2016
09	Laddha Kirtikumar Shivchandra ji	AAGPL9490D	ME/M. Tech and PhD	01/07 /1995	Pharmaceutic al Technology, Perfumery and Flavours	79	17	1	Professor	05/01/2007	05/01/1988
10	Jyotsna sanjeev waghmare	AAOPW6797L	ME/M. Tech and PhD	29/12 /2009	Technology of Oils and Fats, Waxes and Lubricants, Perfumery and Flavours	25	1	2	Associate Professor	04/04/2016	03/04/2003
11	Virendra K Rathod	AGHPR2864C	ME/M. Tech and PhD	01/02 /2006	Chemical Engineering, Perfumery and Flavours	35	25	4	Professor	10/02/2016	08/04/2003
12	G. D. Yadav	AAAPY1188M	ME/M. Tech and PhD	30/06 /1982	Chemical engineering, Perfumery and Flavours	433	101	1	Professor	27/11/1990	22/10/1986
13	Ravindra Dattatraya Kulkarni	AAZPK8159R	ME/M. Tech and PhD	02/08 /2005	Oils, oleochemicals and surfactants	48	12		Professor	04/11/2016`	04/11/2016

15	Parag R. Gogate	AHNPG3328H	ME/M. Tech and PhD	20/06/2002	Chemical Engineering	385	350	4	Associate Professor	04/07/2016	03/07/200
16	S. S. Bhagwat	AAIPB7360E	ME/M. Tech and PhD	01/06/1989	Chemical Engineering	89	39	2	Professor	18/11/2003	18/11/198
17	P. D. Vaidya	AGBPV5853B	ME/M. Tech and PhD	04/01/2005	Chemical Engineering	89	24	5	Associate Professor	12/02/2015	01/08/200
18	Anand Patwardhan	ABWPP6169L	ME/M. Tech and PhD	29/02/1988	Chemical Engineering	133	23	2	Professor	18/12/2007	18/12/200
19	Shamlan M S Reshamwala	BAVPR7928E	M.Sc. and PhD	18/08/2012	Biochemistry and Biotechnology	08	01	0	Assistant Professor		20/08/201
20	D. D. Sarode	AALPS9158E	ME/M. Tech and PhD	15/02/2010	Civil Engineering	7	24	0	Associate Professor	12/06/1997	12/06/199
21	P.G. Goswami	AEAPG6881M	ME/M. Tech and PhD	28/03/2018	Electrical Engineering	06	12	0	Assistant Professor		06/06/199
22	M.A.K. Kerawala	AACPK9005D	ME/M. Tech and PhD	29/09/1984	Electrical Engineering	16	0	0	Associate Professor	14/02/1987	14/02/198
23	P.R. Vavia	ABNPV8456H	ME/M. Tech and PhD	01/07/1991	Pharmaceutical Technology	160	43	7	Professor	08/04/2003	01/12/199
24	A.B. Pandit	AADPP3869K	ME/M. Tech and PhD	31/07/1984	Chemical Engineering	408	15	5	Professor	01/01/1998	01/01/199
25	V.D. Deshpande	AFEPD6698G	M.Sc. and PhD	19/12/2009	Physics	32	7	0	Professor	01/01/2009	02/05/199

26	Ashwin Mohan	AZPPM9011R	M.Sc. and PhD	13/11/2014	Physics	9	0	0	Assistant Professor		09/12/2011
27	Deepak Vithhal Pinjari	AOKPP0919B	ME/M. Tech and PhD	25/12/2012	Chemical technology	88	0	0	Assistant Professor		31/05/2011
28	Sachin Jadhav	BFMOJ9477E	ME/M. Tech and PhD	03/03/2016	Chemical Engineering	15	0	0	Assistant Professor		22/05/2011
29	Vijay Y Sane	AAAPS6503N	B.E./B.Tech	01/06/1979	Dyestuff Technology	0	0	0	Professor		01/07/2011
30	Amol Kulkarni	APGPK7949R	ME/M. Tech and PhD	01/06/2005	Technology of fragrances	0	0	0	Assistant Professor		01/07/2011
31	S.R. Iyer	AAGPI2189A	M.E./M.Tech	01/06/1992	Perfumery and flavors technology	0	0	0	Professor		01/07/2011
32	B. M. Bhanage	ADZPB4128Q	M.Sc. and PhD	01/02/1996	Organic chemistry	438	44	3	Professor	31/12/2003	31/12/2000
33	Usha Sayed	AXYPS6138Q	M.Sc. and PhD	02/02/1998	Textile Technology	33	3	0	Associate Professor	29/09/1998	28/09/1998
34	J. B. Joshi	AABPJ8334K	ME/M. Tech and PhD	01/02/1977	Chemical Engineering	500	86		Professor	03/10/1972	03/10/1977

35	R. D. Kale	ADNPK2056Q	ME/M. Tech and PhD	02/01/2012	Textile technology	47	5	4	Associate Professor	01/07/2019	08/04/2020
36	Ravindra V. Adivarekar	ADYPA8910A	M.Sc. and PhD	01/02/1995	Textile Technology	166	18	8	Professor	31/12/2003	30/12/2020
37	P. K.Gosh	AERPG6341M	ME/M. Tech and PhD	21/05/1980	Chemical Engineering	165	8		Professor	15/04/2015	15/04/2021
38	Pooja Joshi	AMIPJ0883G	ME/M. Tech and PhD	01/02/1977	Biotechnology	4			Associate Professor	03/10/1972	03/10/1977
39	Neetu Jha	AKMPJ1673L	M.Sc. and PhD	14/07/2009	Physics	59	2	2	Assistant Professor		24/01/2021
40	V. H. Dalvi	ADPPD2092K	ME/M. Tech and PhD	09/12/2009	Chemical Engineering	29	6	0	Assistant Professor		05/08/2021
41	Archana Kalekar	CAUPK7808N	M.Sc. and PhD	14/05/2014	Physics	4	2	0	Assistant Professor		01/06/2021
42	Kedar S Kulkarni	ALQPK2687N	ME/M. Tech and PhD	01/12/2003	Textile Chemistry	10	0	0	Assistant Professor		12/02/2021
43	Gail Camerio	ABGPC1210R	M.Sc. and PhD	09/02/1982	Organic chemistry				Professor	01/07/2019	01/07/2021
44	Rashna Giara	AIMPG5872C	M.com and Diploma in Dress Designing and Garment Manufacturing	02/02/2004	Industrial management & HRM	0	0	0	Assistant Professor		22/12/2021

45	R D Jain	AGUPJ7114Q	ME/M. Tech and PhD	28/02/2009	Pharmaceutic al Technology	77	5	3	Assistant Professor		01/10/2011
46	Dilip Udhas	AAGPU8869B	B.E/B.Tec h	01/06/1972	Dyestuff Technology				Assistant Professor		01/01/2011
47	Gomati Shridhar	ABDPS0154P	M.Sc. and PhD	02/03/2018	Organic chemistry	6			Assistant Professor		01/07/2011
48	Nikhil mamaniya	AROPM7747D	M.Sc	02/06/2012	Information technology				Assistant Professor		02/07/2011
49	Aniruddha Shenvi	AXYPM6138Q	ME/M. Tech and PhD	02/06/2012	Chemical Engineering				Assistant Professor		01/07/2011
50	Dilip Bedekar	AACPB2670H	M.Sc	04/06/1976	Technology of Flavors and marketing	0	0	0	Professor	01/07/2019	01/07/2011
51	Sitaram Dixit	ADZPD2916L	M.Sc. and PhD	04/03/2010	Cosmetics, Aroma Therapy and analytical chemistry	0	0	0	Assistant Professor		01/07/2011
52	Mangesh Mokshi	AKNPM0266D	M.E/M.Tech	01/03/2003	Chemical Engineering	0	0	0	Assistant Professor		01/07/2011
53	P. M. Bhate	ABQPB9008A	M.Sc. and PhD	01/02/1989	Organic chemistry	16	4	1	Professor	01/08/2008	01/08/2000

4.1 Student Faculty Ratio (SFR) (10)

UG

No of UG Program in the Department

1

Total Marks 10

Institute Marks 10

Dyestuff and Intermediate Technology			
Year of Study	CAY(2020-21)	CAYm1(2019-20)	CAYm2 (2018-19)
	Sanction Intake	Sanction Intake	Sanction Intake
2st Year	20	20	20
3nd Year	20	20	20
4 th Year	20	20	20
Total	60	60	60
Grand Total	60	60	60

PG

Masters of Technology in Perfumery and Flavor Technology			
Year of Study	CAY(2020-21)	CAYm1(2019-20)	CAYm2 (2018-19)
	Sanction Intake	Sanction Intake	Sanction Intake
1st Year	18	18	18
2nd Year	18	18	18
Total	36	36	36
Grand Total	72	58	44

SFR

No. of UG Programs in the Department	1			
No. of PG Programs in the Department	2			
Description	CAY(2020-21)		CAYm1 (2019-20)	CAYm2 (2018-19)
Total No. of Students in the Department(S)	132	Sum total of all (UG+PG) students	118	Sum total of all (UG+PG) students
No. of Faculty in the Department(F)	26	F1	27	F2
Student Faculty Ratio(SFR)	5.08	SFR1=S1/F1	4.37	SFR2=S2/F2
Average SFR	4.48	SFR=(SFR1+SFR2+SFR3)/3		

5.1.1. Provide the information about the regular and contractual faculty as per the format mentioned below:

	Total number of regular faculty in the department	Total number of contractual faculty in the department
CAY(2020-21)	24	2
CAYm1(2019- 20)	25	2
CAYm2(2018- 19)	24	2

Average SFR for three assessment years : 4.48 Assessment SFR : 10

4.2 Faculty competencies in the area of Program specialization (30)**Total Marks 30.00****4.2.1 Faculty name and specialization for the program under consideration (10)****Institute Marks 10.00**

Name of the faculty	2020-21 (CAY)
A.B. Pandit	Physical and Chemical Processing applications of Cavit
Amit Pratap	Tribo applications of oils and fats, structural modification
Amol Kulkarni	Perfumery, Fragrance
Anand Patwardhan	Membrane separation (separation/recovery of chemicals
Aniruddha Shenvi	Chemical Engineering
Aniruddha Shenvi	Chemical Engineering
Archana Kalekar	Photovoltaics, Quantum Dot Sensitized Solar Cells (QD
Ashwin Mohan	Materials Physics, Quantum Magnetism, Thermal Trans
B. M. Bhanage	Catalysis, Ionic Liquids, Nanomaterials, Enzymatic Cat
D. D. Sarode	Concrete Technology – Construction Chemicals - Risk
Deepak Vithhal Pinjari	Sustainable engineering, cavitation technology, nanoma
Dilip Bedekar	Flavour chemistry
Dilip Udhas	Flavour chemistry
G. D. Yadav	Green Chemistry and Technology (Fundamental and ap
Gail Camerio	Organic Chemistry
Ganapati Shankarling	Perfumery, Fragrance, Green Chemistry and Technolog
Gomati Shridhar	Organic Chemistry
J. B. Joshi	Fluid Mechanics, Multiphase Reactor Design, Computat
Jyotsna sanjeev waghmare	Nutraceuticals, oxidation studies, structural lipids, desig
Kedar S Kulkarni	Textile colouration, Finishing, Green Processing of Textil

Laddha Kirtikumar Shivchandraji	Extraction, isolation and characterization of phytoconstit
M.A.K. Kerawala	Power electronic applications in power system analysis
Mangesh Mokshi	Chemical Engineering
Nabanita Sadhukhan	Perfumery, Fragrance, organic chemistry, Synthesis fun
Nagaiyan Sekar	Perfumery, Fragrance, Fluorescent Colorants in B io-ima
Neetu Jha	Carbon Nanomaterials, Supercapacitors, Fuel Cell Elect
Nikhil mamaniya	IT
P. D. Vaidya	Bio-energy, carbon capture and recycling, wastewater tr
P. K.Ghosh	Salt and Marine Chemicals; Membrane-based processe
P. M. Bhate	Carbohydrate Chemistry and Colour Chemistry
P.G. Goswami	Sustainable Energy and MATLAB simulations
P.R. Vavia	Cyclodextrin based drug delivery systems, Nanosponge
Parag R. Gogate	Sonochemistry, Hydrodynamic Cavitation, Process Inten
Pooja Joshi	Plant Biotechnology, IP protection and policy, patent se
R D Jain	Biosimilar/Biologics Characterization, B iopharmaceutic
R. D. Kale	Technology of Textile Polymers, Polymer Chemistry, Tes
Rashna Giara	Industrial management & HRM
Ravindra Dattatraya Kulkarni	Chemical Modification of Fats; Oleochemicals & Surfact

Ravindra V. Adivarekar	Textile colouration, Green Processing of Textiles, Medic
S. S. Bhagwat	Computational Fluid Dynamics, Transport Phenomena,
S.R. Iyer	Perfumery, Fragrance
Sachin Jadhav	Water and Wastewater Treatment, Membrane-based Se
Satyajit Saha	Perfumery, Fragrance, Asymmetric Organocatalysis-Em
Shamlan M S Reshamwala	Molecular and synthetic biology, recombinant protein ex
Shreerang V. Joshi	Research Interest: Synthesis of Natural Products of B io
Sitaram Dixit	Perfumery, Fragrance
Subrahmanyam Garimalla	Matter Under Extreme Conditions of Pressure, Tempera
Surajit Some	Perfumery, Fragrance, Synthesis of graphene derivative
Uday S. Annapure	Extrusion Processing, Non-thermal processing of food-C
Usha Sayed	Textile Processing, Dyeing, printing, B leaching, Finishin
V. H. Dalvi	Renewable Energy, Solar Thermal Technology, Anaerob
V.D. Deshpande	Polymer nanocomposites, Polymer blends: Crystallizatio
Vijay Y Sane	Dyestuff Technology
Virendra K Rathod	Separation process, Extraction of Natural ingredients, E

Name of the faculty	Relevant Area of Specialization	
	2019-20	2018 19)
A.B. Pandit	Physical and Chemical Processing applications of Cavit	Physical and Chemical Processing applications of Cavit
Amit Pratap	Tribo applications of oils and fats, structural modification	Tribo applications of oils and fats, structural modification
Amol Kulkarni	Perfumery, Fragrance	Perfumery, Fragrance
Anand Patwardhan	Membrane separation (separation/recovery of chemicals	Membrane separation (separation/recovery of chemical
Aniruddha Shenvi	Chemical Engineering	Chemical Engineering
Aniruddha Shenvi	Chemical Engineering	Chemical Engineering
Archana Kalekar	Photovoltaics, Quantum Dot Sensitized Solar Cells (QD	Photovoltaics, Quantum Dot Sensitized Solar Cells (QD
Ashwin Mohan	Materials Physics, Quantum Magnetism, Thermal Trans	Materials Physics, Quantum Magnetism, Thermal Tran
B. M. Bhanage	Catalysis, Ionic Liquids, Nanomaterials, Enzymatic Cat	Catalysis, Ionic Liquids, Nanomaterials, Enzymatic Cat
D. D. Sarode	Concrete Technology – Construction Chemicals - Risk	Concrete Technology – Construction Chemicals - Risk A
Deepak Vithhal Pinjari	Sustainable engineering, cavitation technology, nanoma	Sustainable engineering, cavitation technology, nanoma
Dilip Bedekar	Flavour chemistry	Flavour chemistry
Dilip Udhas	Flavour chemistry	Flavour chemistry
G. D. Yadav	Green Chemistry and Technology (Fundamental and ap	Green Chemistry and Technology (Fundamental and ap
Gail Camerio	Organic Chemistry	Organic Chemistry
Ganapati Shankarling	Perfumery, Fragrance, Green Chemistry and Technolog	Perfumery, Fragrance, Green Chemistry and Technolog
Gomati Shridhar	Organic Chemistry	Organic Chemistry
J. B. Joshi	Fluid Mechanics, Multiphase Reactor Design, Computat	Fluid Mechanics, Multiphase Reactor Design, Computat

Jyotsna sanjeev waghmare	Nutraceuticals, oxidation studies, structural lipids, desig	Nutraceuticals, oxidation studies, structural lipids, desig
Kedar S Kulkarni	Textile colouration, Finishing, Green Processing of Textil	Textile colouration, Finishing, Green Processing of Texti
Laddha Kirtikumar Shivchandraji	Extraction, isolation and characterization of phytoconstit	Extraction, isolation and characterization of phytoconstit
M.A.K. Kerawala	Power electronic applications in power system analysis	Power electronic applications in power system analysis
Mangesh Mokshi	Chemical Engineering	Chemical Engineering
Nabanita Sadhukhan	Perfumery, Fragrance, organic chemistry, Synthesis fun	Perfumery, Fragrance, organic chemistry, Synthesis fun
Nagaiyan Sekar	Perfumery, Fragrance, Fluorescent Colorants in B io-ima	Perfumery, Fragrance, Fluorescent Colorants in B io-im
Neetu Jha	Carbon Nanomaterials, Supercapacitors, Fuel Cell Elect	Carbon Nanomaterials, Supercapacitors, Fuel Cell Elec
Nikhil mamaniya	IT	IT
P. D. Vaidya	Bio-energy, carbon capture and recycling, wastewater tr	Bio-energy, carbon capture and recycling, wastewater tr
P. K.Ghosh	Salt and Marine Chemicals; Membrane-based processe	Salt and Marine Chemicals; Membrane-based processe
P. M. Bhate	Carbohydrate Chemistry and Colour Chemistry	Carbohydrate Chemistry and Colour Chemistry
P.G. Goswami	Sustainable Energy and MATLAB simulations	Sustainable Energy and MATLAB simulations
P.R. Vavia	Cyclodextrin based drug delivery systems, Nanosponge	Cyclodextrin based drug delivery systems, Nanosponge
Parag R. Gogate	Sonochemistry, Hydrodynamic Cavitation, Process Inten	Sonochemistry, Hydrodynamic Cavitation, Process Inten
Pooja Joshi	Plant Biotechnology, IP protection and policy, patent se	Plant Biotechnology, IP protection and policy, patent se
R D Jain	Biosimilar/Biologics Characterization, B iopharmaceutic	Biosimilar/Biologics Characterization, B iopharmaceutic
R. D. Kale	Technology of Textile Polymers, Polymer Chemistry, Tes	Technology of Textile Polymers, Polymer Chemistry, Tes
Rashna Giara	Industrial management & HRM	Industrial management & HRM
Ravindra Dattatraya Kulkarni	Chemical Modification of Fats; Oleochemicals & Surfact	Chemical Modification of Fats; Oleochemicals & Surfact

Ravindra V. Adivarekar	Textile colouration, Green Processing of Textiles, Medic	Textile colouration, Green Processing of Textiles, Medic
S. S. Bhagwat	Computational Fluid Dynamics, Transport Phenomena,	Computational Fluid Dynamics, Transport Phenomena,
S.R. Iyer	Perfumery, Fragrance	Perfumery, Fragrance
Sachin Jadhav	Water and Wastewater Treatment, Membrane-based Se	Water and Wastewater Treatment, Membrane-based Se
Satyajit Saha	Perfumery, Fragrance, Asymmetric Organocatalysis-Em	Perfumery, Fragrance, Asymmetric Organocatalysis-Em
Shamlan M S Reshamwala	Molecular and synthetic biology, recombinant protein ex	Molecular and synthetic biology, recombinant protein ex
Shreerang V. Joshi	Research Interest: Synthesis of Natural Products of B io	Research Interest: Synthesis of Natural Products of B io
Sitaram Dixit	Perfumery, Fragrance	Perfumery, Fragrance
Subrahmanyam Garimalla	Matter Under Extreme Conditions of Pressure, Tempera	Matter Under Extreme Conditions of Pressure, Tempera
Surajit Some	Perfumery, Fragrance, Synthesis of graphene derivative	Perfumery, Fragrance, Synthesis of graphene derivative
Uday S. Annapure	Extrusion Processing, Non-thermal processing of food-C	Extrusion Processing, Non-thermal processing of food-C
Usha Sayed	Textile Processing, Dyeing, printing, B leaching, Finishin	Textile Processing, Dyeing, printing, B leaching, Finishin
V. H. Dalvi	Renewable Energy, Solar Thermal Technology, Anaerob	Renewable Energy, Solar Thermal Technology, Anaerob
V.D. Deshpande	Polymer nanocomposites, Polymer blends: Crystallizatio	Polymer nanocomposites, Polymer blends: Crystallizatio
Vijay Y Sane	Dyestuff Technology	Dyestuff Technology
Virendra K Rathod	Separation process, Extraction of Natural ingredients, E	Separation process, Extraction of Natural ingredients, E

4.2.2 Faculty Research Publication(10)

Institute Marks: 10.00

Name of the faculty	Academic Research							
	Number of quality publications in refereed/SCI Journals,citations, Books/Book Chapters etc.				Ph.D. guided /Ph.D. awarded during the assessmentperiod while working in the institute			
	2019-20(CAYm1)	2018-19 (CAYm1)	2017-18 (CAYm2)	2016-17 (CAYm3)	2019-20(CAYm1)20	2018-19 (CAYm1)	2017-18 (CAYm2)	2016-17 (CAYm3)
A.B. Pandit	20	11	20	16	5	2	3	1
Amit Pratap	4	4	7	5	3	2	3	2
Amol Kulkarni	-	-	-	-	-	-	-	-
Anand Patwardhan	2	3	4	4	2	2	4	2
Aniruddha Shenvi	-	-	-	-	-	-	-	-
Aniruddha Shenvi	-	-	-	-	-	-	-	-
Archana Kalekar	-	-	-	-	-	-	-	-
Ashwin Mohan	1	0	2	2	0	-	-	-
B. M. Bhanage	-	35	25	49	-	4	2	6
D. D. Sarode	2	1	0	0	0	-	-	-
Deepak Vithhal Pinjari	-	12	7	14	-	-	3	-
Dilip Bedekar	-	-	-	-	-	-	-	-
Dilip Udhas	-	-	-	-	-	-	-	-
G. D. Yadav	18	36	28	19	03	6	6	3
Gail Camerio	-	-	-	-	-	-	-	-
Ganapati Shankarling	08	18	15	13	01	5	2	4
Gomati Shridhar	-	-	-	-	-	-	-	-
J. B. Joshi	-	29	33	32	-	-	-	-
Jyotsna sanjeev waghmare	01	2	3	1	02	-	-	-
Kedar S Kulkarni	-	1	-	-	-	-	-	-
Laddha Kirtikumar	0	1	2	5	0	1	2	3

Shivchandraji								
M.A.K. Kerawala	-	-	-	-	-	-	-	-
Mangesh Mokshi	-	-	-	-	-	-	-	-
Nabanita Sadhukhan	-	-	-	-	-	-	-	-
Nagaiyan Sekar	52	53	41	42	04	8	10	3
Neetu Jha	09	11	6	4	02	2	-	-
Nikhil mamaniya	-	-	-	-	-	-	-	-
P. D. Vaidya		11	9	11		5	9	5
P. K.Ghosh	-	10	10	6	-	-	-	-
P. M. Bhate	-	-	2	3	1	2	1	1
P.G. Goswami	2	-	-	-	-	-	-	-
P.R. Vavia	5	3	7	2	7	2	2	-
Parag R. Gogate	24	27	31	29	4	1	3	2
Pooja Joshi		-	4	4		-	-	-
R D Jain	20	8	8	6	3	1	1	-
R. D. Kale	36	8	1	1	4	1	-	-
Rashna Giara	-	-	-	-	-	-	-	-
Ravindra Dattatraya Kulkarni	-	5	3	2	-	-	2	-
Ravindra V. Adivarekar	19	5	7	5	8	2	1	-
S. S. Bhagwat	-	-	1	-	2	2	3	1
S.R. Iyer	-	-	-	-	-	-	-	-
Sachin Jadhav	2	10	-	-	-	-	-	-
Satyajit Saha	4	2	1	-	1	-	-	-
Shamlan M S Reshamwala	7	-	1	2	-	-	-	-
Shreerang V. Joshi	-	-	-	-	-	-	-	-
Sitaram Dixit	-	-	-	-	-	-	-	-

Subrahmanyam Garimalla	-	-	-	-	-	-	-	-
Surajit Some	4	3	2	2	3	-	-	-
Uday S. Annapure	5	10	14	7	2	2	3	1
Usha Sayed	1	-	2	-	0	-	-	1
V. H. Dalvi	5	3	2	-	0	-	8	-
V.D. Deshpande	2	5	3	7	0	1	-	1
Vijay Y Sane	-	-	-	-	-	-	-	-
Virendra K Rathod	25	25	23	18	4	6	6	2

4.2.3 Faculty Development Work (10)

Institute Marks 10.00

Faculty members of Higher Educational Institutions today have to perform a variety of tasks pertaining to diverse roles. In addition to instruction, Faculty members need to innovate and conduct research for their self-renewal, keep abreast with changes in technology, and develop expertise for effective implementation of curricula. They are also expected to provide services to the industry and community for understanding and contributing to the solution of real life problems in industry. Another role relates to the shouldering of administrative responsibilities and co-operation with other Faculty, Heads-of-Departments and the Head of Institute. An effective performance appraisal system for Faculty is vital for optimizing the contribution of individual Faculty to institutional performance. Faculty members regular undergo subject training, pedagogical training and management training conducted by UGC, ASC, TEQIP, AICTE, DST-SERC and other agencies. Apart from the trainings, they are actively involved in online course designs, short term certificate courses and technological event managements. Participation of faculty members in the faculty development programs.

1) V.K.RATHOD

(2018-19)

- Lecture on 'Application of Enzyme for conversion of Biomass in to value added product' , Rowan University, USA Lecture on 'Heat Transfer and its application in heat exchanger design', BPCL Training programme, Mumbai, 2017
- Lecture on Utilization of solid waste from Food Industry for value added products' and 'Utilization of liquid waste from Food Industry for value added products', North Maharashtra University Jalgaon, 2018
- Convener, American Chemical Society School Festival (Workshop), 2018 Treasurer, SCHEMCON, 2018

(2017-18)

- Lecture on 'Application of Enzyme for conversion of Biomass in to value added product' , Rowan University, USA Lecture on 'Heat Transfer and its application in heat exchanger design', BPCL Training programme, Mumbai, 2017
- Lecture on 'Utilization of solid waste from Food Industry for value added products' and 'Utilization of liquid waste from Food Industry for value added products', North Maharashtra University Jalgaon, 2018
- Convener, American Chemical Society School Festival (Workshop), 2018
- Treasurer, SCHEMCON, 2018.

2) J.B. JOSHI

(2018-19)

- 12th International conference on Gas, liquid and solid (GLS-12), Brussels, Belgium

(2017-18)

- 12th International conference on Gas, liquid and solid (GLS-12), Brussels, Belgium

(2016-17)

- Enabling Process Intensification through Computation (EPIC) seminar on Banff, Canada

3) G. S.SHANKARLING

(2016-17)

- "International Symposium on Ionic Liquids" (ISOIL_2016) organized in collaboration with Reliance

Industries on Jan 21st & 22nd 2016 held at Institute of Chemical Technology, Mumbai.

4) N. SEKAR

- Attended the International conference on pure and Applied chemistry held in Mauritius and gave an oral presentation on "NLOphoric organicMolecules - structural Diversities" in July 2016.
- Participated in National conference on "Sharing of Innovative ideas andAchievements of centers of Excellence" held at Siddaganga Institute of Technology, Tumakuru, in April 2016

5) SATYAJIT SAHA

- Seminar on Effluent Treatment and Processing, Coordinator, ICT Mumbai, 14th Sept, 2016 COC-2017, Member of the organizing committee, 9th- 10th Feb 2017

(2018-19)

- Participated in International convention on colorants (COC) 2019 held on 28th Feb and 1st March at The Club, Andheri, organized jointly by Department of Dyestuff Technology, Institute of Chemical Technology and Dyestuff Manufacturing association of India.
- Attended NRCE Workshop (PMMMNMTT), MHRD, on Identification of Subject Wise Resources for Teachers, 6- 8 June 2018, NIEPA, New Delhi, NIEPA, New Delhi
- Invited lecture for a Summer Training Workshop, 9th May 2019 at Birla College, Kalyan, Maharashtra. Coordinator for the twoday Workshop on Design of Experiments, 1st and 2nd Feb 2019, ICT Mumbai.

6) Prof. AMIT P.PRATAP

(2018-19)

- Two day conference on "Process Audit in Oil Seeds & Oil Processing Industries" on 28-29 September 2019 at OTAI Building HBTU, Kanpur
- "Tribological Properties of Branched Fatty Esters as Lube Oil Base Stock" in International Conference on Mechanical Engineering and Applied Composite Materials (MEACM 2019) during November 22-23, 2019 in Singapore
- "Tribological Propoerties of the Functional Fluids Based on Renewable Resources" in National Conference on Advances in Mechanical Engineering at GCE, Keonjhar, Odisha on February 25-26, 2019

(2017-18)

- Research paper entitled "Green Functional Fluids from Castor Oil" by Amit P. Pratap at International Scientific Academy of Engineering & Technology Conferences (ISAET-2016) held during April 28-29, 2016 in Pattaya (Thailand)
- Invited Lecture on "Novel/ Advanced Methods of Vegetable Oil Processing" by Amit P. Pratap at FILTECH 2016

held during October 11- 13, 2016 in Cologne, Germany

- Paper entitled "Rice Bran Oil and Wax: Healthy and Sustainable Choice for Edible and Industrial Applications" by Amit P. Pratap during 3rd International Conference on Rice Bran Oil (ICRBO 2016) held on October 24-25, 2016 in Tokyo University, Japan
- Paper on "Biobased Functional Fluid and Lubricants" by Amit P. Pratap at The 5th Asian Oleochemicals Conference Building market success in challenging times: addressing overcapacity and examining growth opportunities across the value chain held during January 11 – 12, 2017 in Kuala Lumpur, Malaysia
- Research paper entitled "Microbial Biosurfactants from Tree Borne Oils" by Amit P. Pratap at International Association, International Conference on Chemical, Agricultural, Biological and Medical Sciences (CABMS-17) organized during January 23-24, 2017 at Manila, Philippines.

Events Organized:

- SCODET Asia 2016 Exhibition, Conference on “Transformative Technologies & Market Innovations in HPC Industry” and Workshop on “Risk Mitigation in the personal Care Industry” during January 13-15, 2016 at Nehru Centre, Mumbai
- A National Conference on “Innovative Trends In Oleochemicals, Surfactants And Personal Care Products” under TEQIP-II on March 06, 2017 At Prof. K. V. Auditorium, ICT, Mumbai.

7) JyotsnaWaghmare**(2017-18)**

Sr.No.	Title Of Talk	Place	Organiser	Date
01	Lecture on Wonderland of Oils and fats	SNDT Juhu	OTAI , MPOC & SNDTWU	22 Jan 2018
02	Workshop on Creative and Formulation of Natural and Organic Cosmetics	Courtyars by Marriot Mumbai	ISCC	28th-29th of November 2018

(2018-19)

Sr. no	Title of talk	Programme	Organiser	Date
1	Lipids as Phase Changing Material in Solar Thermal Energy Storage	AICTE STTP on Solar Energy	SGGS Institute of Engg& Tech, Nanded	March 31, 2018

8) Prof. K. S.Laddha**(2017-18)**

- National Conference on “Startup Enterprenourship opportunities in modern analytical and standerdisation techniques” held at Sardar Patel College of Pharmacy. Vidyanager Vadtal Road Bakrol Anand Gujrat 388315 on 23rd March, 2018
- Challeges in pharmaceutical product development organized by Sighgad Technical Educaton Society, Smt. Kashibai Nawale College of Pharmacy, Kondawa (Bk) Pune-48, on 10th February, 2018.
- Continuaing Medical Education (CME) for Ayush Teachers Organized by Dept. of Rasashatra and Bhaishajya Kalpana Dr. G. D. Pol Foundation Y. M. T. Ayurvedic Medical College and Hospital Kharghar, Navi Mumabi held at 18th January, 2018.
- Recent trends in spectroscopic and analytical Techniques held at progressive education society Modern College of Pharmacy moshi pune at 11th February, 2018.
- Industrial perspective of natural product formulation at MET Bhujbal Knowlwg City Adgaon Nasik on 13th January, 2018.

9) DR. UDAY S.ANNAPURE**(2017-18)**

- Invited to talk on DBT sponsored National Conference on Recent Trends in Food & Agri Biotech Organised by Dept. Of Biotechnology at Sinhgad College of Engineering, Pune on 14-15 September 2017.
- Invited Guest of Honour at Nutrition week 2017 organised by ICT, Mumbai in Association with AFST Mumbai at ICT on 7th September 2017.
- Cold Plasma Processing for Food and Agriculture" an invited talk at National Conference on “Food and Agriculture Biotechnology” organised by Department of Biotechnology at Sinhgad College of Engineering,

Vadgaon, Pune during 14th and 15th September, 2017.

- Innovative practices in food technology” an invited talk at Kohinoor Art, Commerce and Science College, Khultabad, Aurangabad on 23 Dec 2017.
- Entrepreneurship Development in Soy Food Processing” an invited talk at the hotel “The Peninsula Grand” in Mumbai on the June 29th, 2018.

(2018-19)

- Attended a 19th World Congress of Food Science and Technology conference, IUFOST- 2018 at CIDCO convention & Exhibition Centre, New Mumbai on 23-27, October 2018.
- International Conference on “Technological Innovations for Integration of Food and Health (TIIFH 2019): A focus on North-East India” at the Tezpur University (A Central University), Assam, India between February 14 and 16, 2019.
- Cold Plasma Processing for Food and Agriculture” an invited talk at International Conference on Recent Advances in Food Processing organized by Indian Institute of Food Processing Technology, Thanjaur during August 17-19, 2018
- Soy Based Extruded Products” an invited talk delivered at seminar on “Entrepreneurship Development in Soy Food Processing” organised by US Soybean Export Council, USSEC in collaboration with the Association of Food Scientists and Technologist, on June 29, 2018 at Hotel Peninsula Grand, Saki Naka, Andheri (E), Mumbai.
- Principles of Food Preservation” an invited talk delivered at WORKSHOP ON FOOD PRESERVATION TECHNIQUES organized by BIRAC in collaboration with Institute of Chemical Technology at ICT, Mumbai during February 26–28, 2018

Name of Faculty	Title	Conducted /Participated in Symposia/Seminar/Conference /Workshop	Place
2022-2021			
Dr. Satyajit saha	Unraveling the luminogenic property of furan biomolecular engineering to develop multifunctional AIEgens for application in TNP sensing and Cell imaging	2nd commonwealth chemistry posters-Building Networks to address the goals, RSC	virtual mode
Dr. Satyajit saha	Refresher course in Chemistry	HRDC, Mumbai University	Virtual mode
2020-2021			
Dr. Satyajit saha	Unravelling the luminogenic property of Furan by Molecular Engineering to develop multifunctional AIEgens for application in TNP sensing and Cell-imaging	8th Interdisciplinary Symposium on Materials Chemistry (ISMC-2020), DAE-BRNS	Webex platform
Dr. Satyajit saha	Industry Readiness Programme	Co-ordinator of half-day workshop	
Dr. Satyajit saha	Design and development of axially chiral Bis(Naphthafuran) luminogens as fluorescent probe for cell-imaging	Oral Presentation, ICS, IISER Kolkata	Virtual mode
Dr. Satyajit	Online Examination Reforms Training workshop	NPIU, MHRD	

saha			
Dr. Satyajit saha	Environmentally benign scalable synthesis of 2,3-dihydroquinazolin-4(1H)-one under ball milling	Oral Presentation, IOCSRT-2020, Punjab University	Google meet
Dr. Satyajit saha	Rationally Designed Furocarbazoles as Multifunctional Aggregation Induced Emissive Luminogens for the Sensing of Trinitrophenol (TNP) and Cell-imaging	Oral Presentation, Recent Advances in Chemistry & Material Sciences (2020), Seminar-III", Kolkata	Google meet
Dr. Satyajit saha	Tröger's Base Functionalized Recyclable Porous Covalent Organic Polymer (COP) for the Dye Adsorption from Water	Poster presentation, Indian Chemical Society Research Excellence Award in the Poster presentation at "Recent Advances in Chemistry & Material Sciences (2020), Seminar-II, Kolkata	Google meet
Dr. Satyajit saha	Rationally Designed Multifunctional AIEgens For the Selective Sensing Of Trinitrophenol (TNP) And Cell-Imaging	Oral presentation in International Webinar on "Recent Advances in Science and Technology during the Coronavirus Pandemic-2020, BIT Mesra, Ranchi, India	virtual mode
Dr. Satyajit saha	Rationally Designed Furocarbazoles as Multifunctional Aggregation Induced Emissive Luminogens for the Sensing of Trinitrophenol (TNP) and Cell-imaging	Oral presentation in a webinar VirtCon 2020	Zoom meeting
Dr. Nabanita Sadhukhan	TRAINING CUM WORKSHOP ON ESSENTIAL OIL, PERFUMERY & AROMATHERAPY, 16 th February	Fragrance and Flavour Development Centre, Ministry of MSME, Govt. of India, Kannauj-209726, India	Zoom Meeting
Dr. Nabanita Sadhukhan	Organized Women in STEM ght Organized "Women in STEM: Academia to Industry" (five days)	Convener, ICT and UGC-FRP, Mumbai, India	Zoom meeting
2019-2020			
Dr. Satyajit saha	NAAC Awareness Quiz"-2020	Participation certificate, Dr. Babasaheb Ambedkar Technological University, Lonere	Virtual mode
Dr. Satyajit saha	"Multifunctional AIEgens based on furocarbazoles for the selective detection of TNP and cell-imaging"	1 st prize in poster presentation, "Innovation, Expansion, Impacts and Challenges	Virtual mode

		in Chemical and Biological Sciences", Surendranath College, Kolkata	
Dr. V. H. Dalvi	Fundamentals of Molecular Simulations	Seminar at Centre of continuing education, IIT Kanpur	Kanpur
Dr. V. H. Dalvi	Machine Learning with Business Applications	Workshop at DCAL, IIM Bangalore	Bangalore
Prof. A. V. Patwardhan	Python and Machine Learning	Workshop by TEQIP	ICT, Mumbai
Prof. P. R. Gogate	Improved wastewater treatment using hydrodynamic cavitation	Training	Lviv Polytechnic, Lviv, Ukraine
2018-2019			
Prof. S.S. Bhagwat	National Institute of Educational Planning & Administration	NIEPA	University of Oxford
Prof. S.S. Bhagwat	International Conference on Energy and Environment	keynote speaker at International Conference on Energy and Environment, January 4 th , 2019	VIT, Pune
Prof. S.S. Bhagwat	Interfacial Science & Engineering: Basics and Applications	Invited as speaker for Research seminar on Interfacial Science & Engineering: Basics and Applications March 4 th , 2019	Ahmedabad University, Gujarat.
Prof. S.S. Bhagwat	Environment and Green Technology for Sustainable Development	keynote speaker for National seminar on "Environment and Green Technology for Sustainable Development, January 18-19, 2019	Pune
Prof. S.S. Bhagwat	Energy and Exergy Engineering	Delivered a lecture on "Energy and Exergy Engineering,	KLES Science & Commerce College
Prof. S.S. Bhagwat	Importance of Sciences in Engineering	Invited to talk on Importance of Sciences in Engineering	Don Bosco Institute of Technology
Prof. P.K. Ghosh	Eye on Green Technology, International Conference on Green Methods for Separation, Purification and Nanomaterial Synthesis (GMSP&NS-2018)	Invited as Lecturer, April 24-25, 2018	Jain University, Bengaluru
Prof. P.K. Ghosh	Illustrations of Opportunities to Convert Waste into Value	ICC Seminar on Wealth from Waste, April 27, 2018	Ankleshwar, Gujarat
Prof. P.K.	innovative solutions to problems of industrial and societal	Farewell Seminar in	Matunga

Ghosh	relevance	honour of Professor P. M. Bhate, 28 October, 2018.	
Prof. P.K. Ghosh	Discovery of Cozaar, Losartan Potassium Salt at DuPont	Conference on an Interdisciplinary Approach from Fundamental Sciences to Translational Medicine, 9 January, 2019	St. Xavier's College, Mumbai,
Prof. P.K. Ghosh	how SMEs can partner and benefit from the expertise	Seminar on Technology options for sustainable growth of Indian chemical industry, Feb 9, 2019	UAA Ahmedabad
Prof. P.K. Ghosh	Practical applications of Forward Osmosis with eye on energy conservation	National Conference on Novel Chemical Systems for Therapeutic and Energy Applications (NCSTEA-2019), 1 March 2019	Anand, Gujarat
Prof. P.K. Ghosh	Technology pull and technology push are both important	ChemProtech India / Chemspec India 2019, April 17, 2019	CSIR-CSMCRI, Bhavnagar
Prof. P.R. Gogate	Chemical Reaction Engineering	Training program for Field officers of Maharashtra Pollution Control Board September 2018	-
Prof. P.R. Gogate	Process Calculations, Distillation & Extraction, Crystallization & Filtration	Invited Faculty in Refresher course on Chemical Engineering organized by Indian Chemical Council October 2018	Ranipet, TN
Prof. P.R. Gogate	Combining oxidants with Cavitation Technologies for Process Intensification	talk at workshop organized by Evonik, November 2018	-
Prof. P.R. Gogate	Hydrodynamic cavitation for wastewater treatment	Invited Lecture in School on Advanced Oxidation Processes, November 2018	BITS, Goa,
Prof. P.R. Gogate	Cavitation Technologies for Wastewater treatment", Invited lecture organized by MITCOE	Invited lecture organized by MITCOE, December 2018	Alandi, Pune
Prof. P.R. Gogate	Chemical Reaction Engineering	Invited Faculty in Refresher course on Chemical Engineering organized by Indian Chemical Council,	Mumbai

		February 2019	
Prof. P.R. Gogate	Process Intensification using Cavitation reactors	Invited lecturer, February 2019	Kurukshetra University
Prof. P.R. Gogate	Process Calculations, Chemical Reaction Engineering, Distillation & Extraction, Crystallization & Filtration	Invited Faculty in Refresher course on Chemical Engineering organized by Indian Chemical Council, March 2019	Southern Regional Center, Cuddalore, TN
Prof. P.R. Gogate	Sono-crystallization	Industrial training program on crystallization, March 2019	Cipla, Mumbai
Dr. R.D. Jain	Advances in Technology and Business Potential of New Drug Delivery Systems	17th International Symposium organized by Controlled Release Society-Indian Chapter (CRS-IC), February 2019	The Lalit, Mumbai
Dr. R.D. Jain	Polyrotaxane: Cyclodextrin Based Supramolecular Assembly	Poster Presentation at Controlled Release Society -Indian Chapter 2019	The Lalit, Mumbai
Dr. R.D. Jain	Fabrication and characterization of starch-TPU based nano fibers for wound healing applications	Poster Presentation at 17th International Symposium on Advances in Technology and Potential of New Drug Delivery Systems, Controlled release society-Indian Chapter 2019	The Lalit, Mumbai
Dr. R.D. Jain	Production of uniform insulin crystals using hydrodynamic flow focusing device for sustained release	Poster Presentation at 17th International Symposium on Advances in Technology and Potential of New Drug Delivery Systems, Controlled release society-Indian Chapter 2019	The Lalit, Mumbai
Dr. R.D. Jain	Colorimetric point-of-care detection of cholesterol using chitosan nanofibers	Poster presentation at CRS-IC 2019	The Lalit-Mumbai, India
Dr. R.D. Jain	Synthesis of Zinc oxide Nanostructures using orange peel oil and their incorporation in composite films with Chitosan	Poster presentation at 17th International Symposium of Controlled Release Society - Indian Chapter	The Lalit, Mumbai
Dr. R.D.	Evaluation of novel probiotic composition in Oral health	Poster Presentation at	The Lalit,

Jain		CRS Mumbai Chapter, February 2019	Mumbai
Dr. R.D. Jain	Continuous synthesis of trimethyl chitosan/palladium nano particles as potential anti-cancer therapy	Presentation at 17th International Symposium of Controlled Release Society, February 2019	The Lalit, Mumbai
Dr. R.D. Jain	Production of High Titre Recombinant Monoclonal Antibody against TNF- α	Poster presentation at BPI, 9-10 September 2018	Indian Institute of Technology-Delhi,
Dr. R.D. Jain	Optimization of Process Parameters to Maximize Antibody Production Using Design of Experiments	Poster Presentation at Bioprocessing India, 14-16 December 2018	Indian Institute of Technology, Delhi, India
Dr. R.D. Jain	Optimization of Process Parameters to Maximize Antibody Production Using Design of Experiments	Poster Presentation at Bioprocessing, 14-16 December 2018	Indian Institute of Technology, Delhi, India.
Dr. R.D. Jain	Chitosan based coprocessed excipients for improved tableting	Seminar at Wadhvani Research Center for Bioengineering, November 20, 2018	IIT, Mumbai
Dr. R.D. Jain	Development and evaluation of artificial skin using microfluidics for preclinical	Poster presentation at 3rd WRCB, November 20, 2018	Indian Institute of Technology Bombay, Mumbai
Dr. R.D. Jain	Green Synthesis of Silver Nanoparticles and its Biomedical Application	Poster presentation at BESCON, October 2018	Indian Institute of Technology-Mumbai
Dr. R.D. Jain	Continuous synthesis of tri-methyl chitosan/ palladium nano-particles as potential anti-cancer therapy	Poster Presentation at Conference BESCON-2018, 26-27 Oct 2018	Indian Institute of Technology Bombay, India
Dr. R.D. Jain	Process development for producing uniform insulin crystals using microfluidic device,	Poster Presentation at Biological Engineering Society Conference 2018, 26-27 Oct 2018	Indian Institute of Technology, Bombay
Dr. R.D. Jain	Development and characterization of 3D lung spheroids	Poster Presentation at Biological Engineering Society Conference 2018, 26-27 Oct 2018	Indian Institute of Technology, Bombay
Dr. R.D. Jain	Tackling tuberculosis infection in macrophages using chitosan oligosaccharide nanoplexes	Poster presentation at "Nanobiotech-2018", 24-27 Oct, 2018	All India Institute of Medical Sciences (AIIMS),

			New
Dr. R.D. Jain	Potential of Polymethylmethacrylate Copolymer for developing microcarriers for mammalian cell culture	Poster Presentation at NanoBioteck 2018, 24-27 Oct, 2018	All India Institute of Medical Science, Delhi
Dr. R.D. Jain	Exploring the Interaction of Chitosan Polymer with Lipid Bilayer For si RNA Delivery	Poster presentation at "Nanobioteck-2018", 24-27 Oct, 2018	All India Institute of Medical Science, New Delhi
Dr. R.D. Jain	Gene silencing using chitosan oligosaccharide-siRNA nanoplexes for alleviating lung diseases	Poster Presentation at SBC Mumbai, September 2018	ICT, Mumbai, India
Dr. R.D. Jain	Gene silencing using chitosan oligosaccharide-siRNA nanoplexes for alleviating lung diseases	Poster presentation at Indian Chitin and Chitosan Meeting, 11-13 October 2018	National Chemical Laboratory (NCL), Pune
Dr. R.D. Jain	Synthesis of Zinc oxide Nanostructures using orange peel oil and their incorporation in composite films with Chitosan	Poster presentation at 7th Indian Chitin and Chitosan Society Meeting, 11-13 October 2018	CSIR-NCL Pune, India
Dr. R.D. Jain	The indispensable role of proton balance in the formation of self-assembled chitosan nanoparticles for siRNA delivery	Poster presentation at 7th Indian Chitin and Chitosan Society Meeting, 11-13 October 2018	CSIR-NCL Pune
Dr. R.D. Jain	Chitosan based microcarriers for potential large-scale culture of mammalian cells	Poster presentation at 7th Indian Chitin and Chitosan Society Meeting 11-13 October 2018	CSIR-NCL, Pune
Dr. R.D. Jain	Hydrodynamic flow focusing for producing uniform insulin crystals giving sustained release	Poster Presentation at 1st Controlled Release Asia meeting 24-25 September 2018	Biopolis, Singapore
Dr. R.D. Jain	Elucidating the uptake kinetics of chitosan nanoparticles for siRNA delivery	Poster Presentation at 1st Controlled Release Asia meeting 24-25 September 2018	Biopolis, Singapore
Dr. R.D. Jain	Split and Recombine Micromixer based continuous Synthesis of Chitosan Nanoparticles	Oral Presentation at Microfluidics and Lab on a Chip conference, SELECTBIO, March 2019	Mumbai
Dr. R.D. Jain	FDM 3D printing as a tool for rapid prototyping and manufacturing of controlled release tablets	Poster presentation at 17th Controlled release society-Indian chapter, February 2019	The Lalit, Mumbai
Dr. R.D.	Society of biological chemist	Society of biological	-

Jain		chemist Seminar	
Dr.S.V. Jadhav	Enhancing Accountability and Responsiveness in Scientific Organisations	TEQUIP III, 11 – 15 March 2019	Osmania University, Hyderabad
Dr. Jyotsna Waghmare	Lipids as Phase Changing Material in Solar Thermal Energy Storage	AICTE STTP on Solar Energy, March 31, 2018	SGGS Institute of Engg & Tech, Nanded
Prof. A.B. Pandit	Sustainable Waste Management: Municipal Solid Waste and e-Waste	IGCS Winter School, 2019	at IIT Madras
Prof. A.B. Pandit	Groundnut shell Biochar-Production, characterization, and study of its interactive mechanism with crop fertilizer	2 nd International Conference on Bioresources, Energy, Environment & Materials Technology, 2018 10-13 June	Gangwon Province, South Korea
Prof. A.B. Pandit	A two stage treatment of alkyd resin wastewater: Hydrodynamic cavitation followed by Peroxane process in gas inducing reactor	DAE BRNS 8 th Biennial Symposium on emerging trends in Separation Sciences and Technology, 23-26 May 2018	BITS-Pilani-Goa
Prof. A.B. Pandit	INAE DST initiative on Laboratory safety and hazardous waste management	Lecture at Indian Institutes of Science Education and Research (IISER)	Pune
Prof. A.B. Pandit	Process Intensification Strategies for Chemical Industry	ICT-UAA Silver Jubilee Seminar, February 2018	Ahmadabad
Prof. A.B. Pandit	Intensification of intracellular enzyme recovery	Key note Speaker at 'ACES-2019'	IISER Bhopal
Prof. A.B. Pandit	National Opportunities for Chemical Engineers	Key note Lecture, CHEMIX 2019	VNIT Nagpur
Prof. A.B. Pandit	Laboratory Safe Practices and Waste Disposal in Academic and R & D Institutes	Invited Talk at 'INAE-DST'	Savitribai Phule Pune University, Pune
Prof. A.B. Pandit	Engg. Design and Scale up of Crystallization	Key note speaker at 12th International Workshop on Crystallization, Filtration, Drying – WFCFD	-
Prof. A.B. Pandit	Integration of Sustainability Concepts in Chemical Engineering Education	Workshop organized in collaboration with WIPRO Foundation	-
Prof.	CFD Modeling for Reactor Design	Symposium on	NCL, Pune

A.W. Patwardhan		Chemical Reaction Engineering 17-18 December 2018	
Prof. A.W. Patwardhan	Synthesis of boron doped carbon nanotubes using floating catalyst chemical vapor deposition	Second International Conference on Nano Science and Engineering Applications ICONSEA, 4-6 October 2018	JNTU-Hyderabad
Prof. A.W. Patwardhan	Synthesis of high aspect ratio graphene oxide sheets using one pot electrochemical exfoliation	Conference on Nano Science and Engineering Applications ICONSEA-2018, 4-6 October 2018	JNTU-Hyderabad
Prof. A.W. Patwardhan	Numerical Simulations of the Gas-Liquid two phase flow using population balance modelling in Vertical Pipe	16th Multiphase flow conference	Dresden, Germany
Prof. A.W. Patwardhan	Sensitivity Analysis for CFD Simulations of Randomly Arranged Packed Beds of Spheres	12th International Conference on Complex Fluids and Soft Matter, 6-9 December 2018	IIT-Roorkee
Prof. A.W. Patwardhan	Experimental and Computational Studies for Two Phase Flow Pressure Drop in Vertical Tube Boiling	7th International and 45th National Conference on Fluid Mechanics and Fluid Power(FMFP), 10-12 December	IIT-Bombay, Mumbai
Prof. A.W. Patwardhan	Direct Numerical Simulation for comparison of Flow Structures in Three-Dimensional Wake Flow	7th International and 45th National Conference on Fluid Mechanics and Fluid Power(FMFP), 10-12 December	IIT-Bombay, Mumbai
Prof. A.W. Patwardhan	New methodology for modeling pressure drop and thermal hydraulic characteristics in long vertical boiler tubes at high pressure	National Conference on Critical Heat Flux and Multiphase Flow	IIT-BHU, Varanasi
Prof. A.W. Patwardhan	Thermal Hydraulics Study of High Pressure Flow Boiling in Vertical Tube	71th Annual Session of Indian Institute of Chemical Engineers, (CHEMCON-2018), 27-30 Decemeber	NIT-Jalandhar
Prof. A.W. Patwardhan	Residence Time Distribution Studies in Multi-stage Extraction Column	71th Annual Session of Indian Institute of Chemical Engineers, (CHEMCON-2018) 27-30 Decemeber	NIT-Jalandhar
Prof. A.W. Patwardhan	Comparison of the Turbulence Models for Flow Fields Prediction of the Jet Flow Decay	71th Annual Session of Indian Institute of Chemical Engineers, (CHEMCON-2018) 27-30	NIT-Jalandhar

		Decemeber	
Prof. A.W. Patwardhan	Mathematical Modeling of Tea Bag Infusion Kinetics.	71th Annual Session of Indian Institute of Chemical Engineers, (CHEMCON-2018) 27-30 Decemeber	NIT-Jalandhar
Prof. A.W. Patwardhan	Numerical Simulations of the Slug Flow for the Air-Water Two Phase Flow System in Vertical Pipe	71th Annual Session of Indian Institute of Chemical Engineers, (CHEMCON-2018) 27-30 Decemeber	NIT-Jalandhar
Prof. A.W. Patwardhan	Single step Electrochemical Exfoliation of Graphite: Synthesis, Optimization and Characterization.	71th Annual Session of Indian Institute of Chemical Engineers, (CHEMCON-2018) 27-30 Decemeber	NIT-Jalandhar
Prof. A.W. Patwardhan	Synthesis of boron doped carbon nanotubes and study of variation in boron concentration	71th Annual Session of Indian Institute of Chemical Engineers, (CHEMCON-2018) 27-30 Decemeber	NIT-Jalandhar
Prof. A.W. Patwardhan	Hydrodynamics of asymmetric rotating agitated extractor: Investigation of drop size , holdup and mass transfer	71th Annual Session of Indian Institute of Chemical Engineers, (CHEMCON-2018) 27-30 Decemeber	NIT-Jalandhar
Prof. A.W. Patwardhan	Direct Numerical Simulation for External and Internal Flows in Open FOAM	71th Annual Session of Indian Institute of Chemical Engineers, (CHEMCON-2018) 27-30 Decemeber	NIT-Jalandhar
Prof. A.W. Patwardhan	Mathematical Modeling of Tea Bag Infusion Kinetics.	2nd International Conference on Engineering Future Food, (EFF2019), 26 – 29 de maio de2019	Bologna, Italy
Prof. A.W. Patwardhan	CFD PBM simulations of asymmetric rotating impeller column,	14th International Conference on Gas-Liquid and Gas-Liquid-Solid Reactor Engineering(GLS-14) 30 may-3 june, 2019	Guilin, China
Prof. A.W. Patwardhan	Direct Numerical Simulation (DNS) to Investigate the Effect of Schmidt Number on Mass Transfer through Packed Beds	14th International Conference on Gas-Liquid and Gas-Liquid-Solid Reactor Engineering(GLS-14) 30 may-3 june, 2019	Guilin, China
Prof. A.V.	Cleaning of polyamide nanofiltration membranes: Comparison between conventional and ultrasound-	Paper presented at 1 st International	Kolhapur, Maharashtra

Patwardhan	assisted technology	Conference Materials & Environmental Science (ICMES), 18-20 December 2018	
Prof. A.V. Patwardhan	COD reduction of industrial effluent by polyamide nanofiltration membranes	Paper presented at 1 st International Conference Materials & Environmental Science (ICMES), 18-20 December 2018	Kolhapur, Maharashtra
Prof. A.V. Patwardhan	Safety Week	Safety Week Workshop	ICT Mumbai
Dr. P.D. Vaidya	Distillation & Absorption	11 th International Conference on Distillation & Absorption, September 16-19, 2018	Florence
Dr. P.D. Vaidya	Hydrogen & Fuel Cell	7 th International Hydrogen & Fuel Cell Conference (IHFC – 2018), , December 9-11, 2018,	Jodhpur
Dr. P.D. Vaidya	Orientation to Chemical Safety and Risk Management	Sandia National Laboratory's Workshop	ICT, Mumbai.
Prof (Dr). Ravindra D. Kale	An Odyssey with Technical Textiles	Texas Tech University, USA, 20th February 2018	ICT, Mumbai
Prof (Dr). Ravindra D. Kale	Woolmark Wool Education Course	SEAM CONSULTING GROUP, 12th March 2018	ICT, Mumbai
Prof (Dr). Ravindra D. Kale	textile 4.0 Global and Indian Perspective	The Textile Association, 22nd and 23 rd March 2018	Hotel The Lalit, Andheri (E), Mumbai
Prof (Dr). Ravindra D. Kale	Research Methodology for Engineering Management Research	AICTE	VJTI, Matunga
Prof. V.K. Rathod	Application of Enzyme for conversion of Biomass in to value added product	Keynote Lecture	Rowan University, USA
Prof. V.K. Rathod	'Utilization of solid waste from Food Industry for value added products' and 'Utilization of liquid waste from Food Industry for value added products'	Keynote Lecture, 2018	North Maharashtra University Jalgaon
Dr.	International convention on colorants (COC)	Department of Dyestuff	

Satyajit Saha		Technology, 28 th Feb to 1 st March 2019	The Club, Andheri
Dr. N. sekar	International convention on colorants (COC)	Department of Dyestuff Technology, 28 th Feb to 1 st March 2019	The Club, Andheri
2017-2018			
Dr. Jyotsna Waghmare	Lecture on Wonderland of Oils and fats	SNDT, Juhu, 22 Jan 2018	OTAI , MPOC & SNDTWU
Dr. Jyotsna Waghmare	Workshop on Creative and Formulation of Natural and Organic Cosmetics	Courtyars by Marriot Mumbai, 28th-29th November 2018	ISCC
Dr. S. B. Joshi	Workshop organized on " Improving communication Interpersonnal skills and time management w.r. t. Pharma Industry	Application on Thermal Analysis in Pharma Industry, 19/03/2018 to 21/03/2018	-
Dr. S. B. Joshi	Hands on training on Animal cell culture and molecular techniques using the human/ cancer cell lines for various expts	Attend Cell culture Workshop at International Center for Stem Cells, Cancer and Biotechnology, 16/07/2018 to 22/07/2018	Pune
Dr. S. B. Joshi	Two days International workshop on Quality by design Practicle Implementation of Tools &Tractics of QbD & L6 in Pharma Product Development	Learn the basic of QbD, 12/10/2018 to 13/10/2018	-
Dr. Uday S. Annapur e	Effect of various processing method on antinutritional factors and protein and starch digestibility of varieties of pigeon pea dhal	26 th Indian Convention of Food Scientists and Technologists, December 7-9, 2017	Hyderabad
Dr. Uday S. Annapur e	S o y m i d a f e b r i f u g a exudates gum an encapsulating agent	26 th Indian Convention of Food Scientists and Technologists, December 7-9, 2017	Hyderabad
Dr. Uday S. Annapur e	Bioactive properties of oil extracted from Coconut Testa	26 th Indian Convention of Food Scientists and Technologists, December 7-9, 2017	Hyderabad
Dr. N. Sekar	Participated in Teaching- Learning	Workshop, 24th Sept, 2016	ICT, Mumbai
Dr. N. Sekar	NLOphoric organic Molecules - structural Diversities	International conference on pure and Applied chemistry, 18-	Mauritius

		22 July 2016	
Dr. N. Sekar	Sharing of Innovative ideas and Achievements of centers of Excellence	Siddaganga Institute of Technology, April 2016	Tumakuru
Prof. A.V. Patwardhan	Synthesis and characterization of ultrafiltration ceramic membranes using solid spent material doped in α -alumina from chemical industries	Recent Trends on Membranes and Separation Technology (RTMST-17) Workshop, November 22-23, 2017	CSMCRI, Bhavnagar
Prof. A.V. Patwardhan	Synthesis and Characterization of Microfiltration Ceramic Membranes: Re-use of Industrial Solid Spent Materials	Poster presentation on Recent Trend and Developments in Environmental and Basic Sciences (RTDEBS 2018), 10th March 2018	S.D.D. Arts College, Wada, Thane
Prof. A.V. Patwardhan	Synthesis and characterization of ultra-filtration ceramic membranes using solid spent material doped in alpha alumina from chemical industries	Paper presented at DAE – BRNS Biennial “Symposium on Emerging Trends in Separation Science and Technology (SESTEC –2018), May 23-26, 2018	BITS Pilani, K.K. Birla Goa
Prof. A.V. Patwardhan	Development of grafted resins and membranes (extractants) for precious metals	CHEMIX-18, April 7-8, 2018	VNIT, Nagpur
Prof. A.V. Patwardhan	Synthesis and characterization of ultra-filtration ceramic membranes using solid spent material doped in alpha alumina from chemical industries	Paper presented at DAE –BRNS Biennial Symposium on Emerging Trends, May 23-26, 2018	BITS Pilani, K.K. Birla Goa
Prof. A.V. Patwardhan	Application of ceramic membranes in treating laundry wastewater	Paper presentation at Outstanding Young Chemical Engineers (OYCE), 24 March 2018	Mumbai
Prof. A.V. Patwardhan	Application of ceramic membranes in treating laundry wastewater	Paper presentation at Outstanding Young Chemical Engineers (OYCE), 24 March 2018	Mumbai
Prof. A.W. Patwardhan	Controlling the carbon nanotubes type with processing parameters from floating catalyst chemical vapor deposition synthesis	International Conference on Nanotechnology	IIT Roorkee
Prof. A.W. Patwardhan	Synthesis of modified carbon nanotubes	International Conference on Nanotechnology	IIT Roorkee
Prof. A.W.	Flow Patterns, Flow Pattern Map And Void Fraction Measurement Of Air/ Water Two Phase Flow In Vertical	National Conference on Fluid Mechanics and	Amrita University,

Patwardhan	Pipe	Fluid Power	Kerala
Prof. A.W. Patwardhan	Design and Scale-up of Asymmetric Rotary Agitated Liquid – Liquid Extraction Columns, Eighth Biennial Symposium On Emerging Trends In Separation Science And Technology	SESTEC – 2018	BITS Goa
Prof. A.W. Patwardhan	Hydrodynamic Characteristics between Pulsed Disc and Doughnut Column and Asymmetric Rotating Impeller Column	Eighth Biennial Symposium On Emerging Trends In Separation Science And Technology, SESTEC – 2018	BITS Goa
Prof. A.W. Patwardhan	CFD-PBM Simulations of Asymmetric Rotating Impeller Column	Eighth Biennial Symposium On Emerging Trends In Separation Science And Technology, SESTEC – 2018	BITS Goa
Prof. A.W. Patwardhan	Synergistic Behavior of Tri-butyl Phosphate and Di-(2-ethylhexyl) Phosphoric Acid	Eighth Biennial Symposium On Emerging Trends In Separation Science And Technology, SESTEC – 2018	BITS Goa
Prof. A.W. Patwardhan	Recovery of Lithium from Sea Water Bitterns by Liquid – Liquid Extraction	Eighth Biennial Symposium On Emerging Trends In Separation Science And Technology, SESTEC – 2018	BITS Goa
Prof. V.K. Rathod	Application of Enzyme for conversion of Biomass into value added product	Guest lecturer	Rowan University, USA
Prof. V.K. Rathod	Heat Transfer and its application in heat exchanger design	BPCL Training program, 2017	Mumbai
Prof. V.K. Rathod	Utilization of solid waste from Food Industry for value added Products & Utilization of liquid waste from Food Industry for value added products	Guest lecture	North Maharashtra University Jalgaon
Prof. V.K.	American Chemical Society School -Festival	Workshop	-

Rathod			
Prof. P. R. Gogate	Hydrodynamic cavitation for Wastewater treatment	Invited for presentation, November 2017	Saudi Arabia
Prof. P. R. Gogate	Intensified Hybrid oxidation processes based on hydrodynamic cavitation for treatment of emerging contaminants	Invited Lecture at AOSS-3, September 2017 Invited Lecture at AOSS-3, 14-16 September 2017	SRM University
Prof. P. R. Gogate	Cavitation Reactors	Annual Convention of Marathi Vidnyan Parishad, December 2017	Kudal, Maharashtra
Prof. P. R. Gogate	Intensification of Chemical processing applications using Cavitation Reactors	Invited Lecturer	PREC, Loni
Prof. P. R. Gogate	Intensified Production of Biofuels from Sustainable Raw Materials using Ultrasonic Reactors	Invited Lecture at the Indo- Japan Bilateral Symposium, 1-4 February 2018	IIT-Guwahati
Prof. P. R. Gogate	crystallization using ultrasonic irradiation	Invited lecture at WFCFD, February 2018	ICT Mumbai
Prof. P. R. Gogate	Process Intensification of Chemical Processing applications using cavitation reactors	Tantr Avishkar 2018	TSEC, Mumbai
Prof. P.D. Vaidya	6th International Conference on Hydrogen and Fuel Cells	6th International Conference on Hydrogen and Fuel Cells, Dec. 10-12, 2017	Pune
Prof. P.D. Vaidya	Orientation to Chemical Security Risk Management	3-Day Seminar, January 2018	SANDIA National Laboratories (USA)
Dr. R.D. Jain	Evaluation of heat and agitation induced aggregation profile of insulin using biophysical techniques	Poster Presentation at Indian Biophysical Society-2018, 9-13 March 2018	Indian Institute of Science Education and Research (IISER), Pune
Dr. R.D. Jain	Characterization of Serum Nano-particles with Serum Proteins	Poster Presentation at Indian Biophysical Society Annual Meet, 9-13 March 2018	IISER-Pune

Dr. R.D. Jain	Charge based Protein-Nanoparticle Interaction	Poster presentation at CRS- India, February 2018	Mumbai
Dr. R.D. Jain	Salzyme Enzyme mimicking metal salt as an alternative catalyst for organic synthesis	Conference on Advances in Catalysis for Energy and Environment, January 10-12 2018	-
Dr. R.D. Jain	Skinon- a-chip: An alternativeto- animal, 3D in-vitro skin model for preclinical and biomedical applications	Oral Presentation at Microfluidics and Lab, SELECTBIO	Mumbai
Dr. R.D. Jain	Human Skin for Preclinical Chemical, Pharmaceutical and Cosmetic Testing	Poster Presentation at Conference on "India Centric R&D	Indian Chemical Council at Mumbai
Dr. R.D. Jain	Enzyme immobilized chitosanbased nanofibers used for detection of cholesterol	Poster presentation at Nanobioteck-2017 Annual Conference of Indian Society of Nanomedicine, 6-8 December 2017	Trivandrum, Kerala
Dr. R.D. Jain	Deep eutectic solvents as viable reaction media for lipase catalyzed reaction	Poster presentation at Bioprocessing India, 9-11 December 2017	IIT Guwahati
Dr. R.D. Jain	Design, Fabrication and Optimization of microbioreactor for in-vitro development of human skin tissue	Poster Presentation and exhibition at 3 rd TEQIP-INN, March 2017	ICT, Mumbai
Dr. R.D. Jain	Microfluidic platform for the controlled synthesis of polymeric nanoparticles	Poster Presentation at Nano India 2017	IIT, New Delhi, India
Dr. R.D. Jain	Implications for Nano-Biointeractions in Cellular Studies	Poster Presentation At NanoIndia-2017	IIT, New Delhi, India
Prof. Ravindra D. Kulkarni	Lipids as Phase Changing Material in Solar Thermal Energy Storage	AICTE STTP on Solar Energy, March 31,2018	SGGS Institute of Engg & Tech, Nanded
Prof. Ravindra D. Kulkarni	Green Synthesis of Multifunctional Photoinitiators	Plenary Lecture in Two days UGC-SAP Sponsored National Conference ICLS 2018, March5-6 2018	School of Chemical Sciences, North Maharashtra University,

			Jalgaon, MS
Prof. Ravindra D. Kulkarni	Preparation of High Performance Copper Phthalocyanine Pigment Concentrates and Modelling studies	National Conference on Trends and Challenges in Architectural Coatings, Feb,16,2018	Society for Industrial Chemistry in association with D Polymer & Surface Engg, ICT, Mumbai
Prof. Ravindra D. Kulkarni	Recent Trends in Science and Technology	Expert Talk, Feb. 02, 2018	AMITY University, Panvel, MS 410206
Prof. Ravindra D. Kulkarni	Nutritional Properties of Palm & Other Oils	Workshop on Palm Oil, Jan.22,2018	SNDT Campus, Juhu, Palm Oil Council, Malaysia& O
Prof. Ravindra D. Kulkarni	Oleochemicals in Food, Polymer and Plastics Industries	Derivatives and Applications, March 16-17, 2017	OTAI (WZ), India
2016-2017			
Prof A. B. Pandit	The word academy of science (TWAS)	General Meeting	Rwanda, South Africa
Prof A. B. Pandit	15th Meeting of the European Society of Sonochemistry-ESS15	15th Meeting of the European Society of Sonochemistry-ESS15	Istanbul, Turkey
Prof. A. V. Patwardhan	Transport of Ruthenium through Supported Liquid Membrane	International Conference on Membrane Technology and its Applications (MEMSEP 2017), 21-23 February 2017	Tiruchirappalli.
Prof. A. V. Patwardhan	Introduction to Research Approach	4 th INSPIRE Science Camp of DST ("Innovation in Science Pursuit for Inspired Research), 06 to 10 December 2016	G. N. Sapkal College of Engineering, Nashik

Prof. A. V. Patwardhan	Orientation to Chemical Security Risk Management	The United States Department of State, October 5 to 7, 2016	United States
Prof. A. V. Patwardhan	Materials Characterization	Society of Industrial Chemistry and Chemistry Division, BARC, 2 July 2016	HBNI Complex, BARC, Mumbai
Prof. A. V. Patwardhan	Effluent Treatment and Processing	Seminar by Dyestuff Department, ICT, Mumbai, 14 Sept 2016.	ICT Mumbai
Prof. A. V. Patwardhan	Water: Conservation, Recycling and Desalination	Seminar by Dyestuff Department, ICT, Mumbai, 4 Feb 2017	ICT Mumbai
Prof. A. V. Patwardhan	Advanced Treatment and Recycling of Urban and Industrial Wastewater,	School of Water resources, 6 to 10 March 2017	IIT Kharagpur
Prof. A. V. Patwardhan	Microbial colorants / pigments	Business proposal presented at AXISMOVES-2017, 12 May 2017	Axis Bank, at New Delhi
Prof. A. V. Patwardhan	Microbial colorants/ pigments	Business proposal presented at IIGP-FICCI DST-LOCKHEED Porogramme, 2017	Stanford Graduate School of Business, Texas
Prof. A. W. Patwardhan	Application of Numerical Heat Transfer to Industrial Problems	CFD Modeling of High Pressure Sub-cooled Boiling Flow in Vertical Tubes, 2017	BARC
Dr. R. D. Jain	Synthesis, Characterization and Cellular Imaging	Hands on Training Workshop on Nano-Drug Delivery System, October 2016	ICT, Mumbai, India
Prof. Ravindra D. Kulkarni	Pressure Driven Membrane Separation Techniques for Drinking Water and Effluent Treatment	MHRD-TEQIP STTP on Hygienic Drinking water, Dec. 20, 2016	SGGS Institute of Engg & Tech, Nanded
Prof. Ravindra D. Kulkarni	Polymorph Selective Synthesis of Nanomaterials and Reactive Crystallisation and Engineering	Joshi Memorial IPI Presentation, March 19, 2016	College of Engineering and Technology, Akola
Prof. Ravindra	Surfactant Mediated Polymorph Selective Solution Spray Synthesis of Nanopigments and their Characterisations	National Conference on Synthesis of	G.T. P. College (UGC

D. Kulkarni		Nanomaterials, Feb 09, 2016	SAP), Nandurbar
Dr. R. D. Jain	International Symposium of the Controlled Release Society-Indian Chapter	International Symposium of the Controlled Release Society-Indian Chapter	ICT, Mumbai
Dr. Amit P. Pratap	Green Functional Fluids from Castor Oil	International Scientific Academy of Engineering & Technology Conferences, April 28-29, 2016	Pattaya (Thailand)
Dr. Amit P. Pratap	Novel/ Advanced Methods of Vegetable Oil Processing	FILTECH, October 11-13, 2016	Cologne, Germany
Dr. Amit P. Pratap	Biobased Functional Fluid and Lubricants	5th Asian Oleochemicals Conference, January 11 – 12, 2017	Kuala Lumpur, Malaysia
Dr. Amit P. Pratap	Microbial Biosurfactants from Tree Borne Oils	Chemical, Agricultural, Biological and Medical Sciences, January 23-24, 2017	Manila, Philippines
Dr. Amit P. Pratap	Rice Bran Oil and Wax: Healthy and Sustainable Choice for Edible and Industrial Applications	3rd International Conference on Rice Bran Oil (ICRBO 2016), October 24-25, 2016	Tokyo University, Japan
Prof. D. V. Pinjari	Cavitation: a Novel Approach for Process Intensification, in National Conference	National Conference On Recent Trends In Chemical Engineering And Technology (REACT)13-15 Jan 2017	Laxminarayan Institute Of Technology (LIT), Nagpur
Prof. D. V. Pinjari	Synthesis of Molybdenum disulphide by using ultrasound and conventional method	National Conference On Recent Trends In Chemical Engineering And Technology (REACT)13-15 Jan 2017	Institute Of Technology (LIT), Nagpur
Prof. D. V. Pinjari	Intensification of Chalcone (3-(4-fluorophenyl)-1-(4-methoxyphenyl) prop-2-en-1-one): Advantage over conventional route (http://www.sciencedirect.com/science/article/pii/S1350417710001847)	National Level Seminar on Recent Trends In Nanomaterial And Their Applications (RTNA)13-15 Jan 2017	Sangola College, Sangola

Prof. D. V. Pinjari	Acoustic Cavitation as a Novel Approach for Formulation of Paraffin Wax Nanoemulsions, in NANO INDIA	Workshop by Centre for Nanotechnology & Advanced Biomaterials (CeNTAB),	SASTRA University, Thanjavur
Prof. D. V. Pinjari	Doping of N-Octyl Phosphonic acid species on the surface of ultrasonically synthesized Zinc phosphate nano-pigment and its anticorrosive performance in carrier resin at various concentrations	Workshop by Centre for Nanotechnology & Advanced Biomaterials (CeNTAB),	SASTRA University, Thanjavur
Prof. P. K. Gosh	Simple Illustrations of the Interplay between Science and Innovation	National Science Day conference	NCL Pune
Prof. P. K. Gosh	Tapping into the potential of sunshine, wasteland and long coastline of India for renewable energy	National Technology Day conference	Indian Institute of Petroleum, Dehradun
Prof. P. K. Gosh	Innovations around membranes, membrane-based devices and newer application areas	National Conference on Recent Trends on Membranes & Separations Technology (RTMST-2017)	CSIR-CSMCRI, Bhavnagar
Prof. P. K. Gosh	Innovations with an Eye on Superior Products, Greener Process Routes and Utilization of Wasted Resources	United Phosphorous-Chemcon Distinguished Speaker Award	Haldia Institute of Technology
Prof. P. K. Gosh	Crystallization	9 th International Workshop on Crystallization	ICT, Mumbai
Prof. P. R. Gogate	Intensification of Chemical and Physical Processing using cavitation reactors	Guest lecturer, November 2016	KK Wagh College of Engineering, Nashik
Prof. P.R. Gogate	Intensified Delignification and Enzymatic Hydrolysis of Lignocellulosic Biomass with an Objective of Enhancing Biofuel Production	Intensified Delignification and Enzymatic Hydrolysis of Lignocellulosic Biomass with an Objective of Enhancing Biofuel Production, Feb 2017	Bogazici University, Istanbul, Turkey
Prof. P.R. Gogate	Process Intensification using Cavitation Reactors and enzymes	Invited lecture at Faculty of Engineering, March 2017	Minho, Portugal
Prof. P.R. Gogate	Intensification of Chemical processing applications using Cavitation Reactors	Invited lecture at Faculty of Engineering, June 2017	University of Porto, Portugal
Prof. P.R. Gogate	Intensification of Chemical processing applications using Cavitation Reactors	Invited lecture at National workshop, June 2017	AISSMS College of Engineering

Prof. P.R. Gogate	Improved crystallization using ultrasonic irradiation	WFCFD workshop, August 2016	ICT Mumbai
Prof. P.R. Gogate	Improvements in wastewater treatment based on oxidation processes	Indo-German conference, May 2017	Hotel Sheraton, Pune,
Prof. P.R. Gogate	Chemical Reaction Engineering	Refresher course on Chemical Engineering organized by Indian Chemical Council	Mumbai
Prof. P.R. Gogate	Improved wastewater treatment using advanced oxidation processes	Seminar on Solution based awareness on air and water quality	Tarapur MIDC
Prof. P.D. Vaidya	PETROTECH 2016	PETROTECH 2016, December 6-8, 2016	New Delhi
Prof. P.D. Vaidya	Refresher Course in Biotechnology	Refresher Course in Biotechnology, Feb 20 – March 11, 2016	University of Mumbai
Prof. P.D. Vaidya	Biology for Engineers	Short term course, January 2017	CoEP, Pune.
Prof. P.D. Vaidya	Municipal Solid Waste to Energy	Short term course, February 2017	Islampur
Prof. P.D. Vaidya	Labopratory and Ergonomics for Engineers	Short term course, June 12-16, 2017	IIT Mumbai
Prof. P.D. Vaidya	How to overcome challenges in hydrogen production from steam reforming of biomass surrogates	Sustainable Development for Energy and Environment Workshop (ICSDEE-2017)	NCL, Pune
Dr. S. Saha	Pigment Finishing and Printing Technology	Coordinator, Workshop, 13th Sept, 2016	ICT, Mumbai

4.3 Faculty as participants in Faculty development/training activities/ STTPs (5)

Total Marks 5.00

Institute Marks 5.00

4.3 Work Shop and Short-Term Course Attended:

Sr. No.	Faculty name	Event
1.	A.B. Pandit	IGCS Winter School, held at IIT Madras, India, (2019), on Sustainable Waste Management: Municipal Solid Waste and e-Waste, Priyanka Sathe, A. B. Pandit Workshop organized in collaboration with WIPRO Foundation Ltd. 'Integration of Sustainability Concepts in Chemical Engineering Education', February 2018
2.	V.K. Rathod	Workshop on process intensification, 2019 Training program on "Digital transformation through E-Governance and information and communication technology"; 5 days Training at ICT Mumbai Attended the faculty development programme on "Machine Learning with Business Applications" with Primer on Big Data AI & DeepLearning, 5 days, Training at ICT Mumbai Participate in the meeting of "Design and Development of a customised ERP system for a group of technical institutes, whose functions are similar in nature under TEQIP-III", 1 day, Meeting, NPIU office, New Delhi
3.	Parag Gogate	Participation at Achema 2018, Germany. Sonocrystallization, Industrial training program on crystallization, Cipla, Mumbai, March, 2019 Training program on "Digital transformation through E-Governance and information and communication technology"; 5 days Training at ICT Mumbai P.R. Gogate, "Chemical Reaction Engineering", Invited Faculty in Refresher course on Chemical Engineering organized by Indian Chemical Council, Mumbai, Maharashtra, June 2017 Sonocrystallization, Industrial training program on crystallization, Cipla, Mumbai.
4.	S.S. Bhagwat	Three week programme at NIEPA "National Institute of Educational Planning & Administration" along with travel to University of Oxford. Management Development Programme for Teaching Staff, 4 days, Faculty Development Programme, ICT, Mumbai NIEPA "National Institute of educational planning and administration"
5.	P.D. Vaidya	Events Organized: 3-Day seminar series titled "Orientation to Chemical Security Risk Management" by SANDIA National Laboratories (USA) in January 2018. Refresher Course in Biotechnology, Feb 20 – March 11, 2016, University of Mumbai Participation & oral Presentation titled " Butanol reforming for hydrogen production in 7th International Hydrogen & fuel cell conference, 2 days Faculty Development Programme, Jodhpur Participation & oral Presentation titled " Butanol reforming for hydrogen production in 7th International Hydrogen & fuel cell conference, 2 days Faculty Development Programme, Jodhpur
6.	Anand Patwardhan	Attended workshop on "Orientation to Chemical Security Risk Management", at ICT, Mumbai, organised by ICT Mumbai. Sponsored by The United States Department of State. October 5 to 7, 2016. Attended five-day short term course on "Advanced Treatment and Recycling of Urban and Industrial Wastewater", at IIT Kharagpur, organised by School of Water resources, IIT Kharagpur, and TEQIP Phase II. 6 to 10 March 2017.

		<p>“Microbial colorants/ pigments”, Vaishali M. Kulkarni, Arjun Singh Bajwa, Anand V. Patwardhan. Business proposal presented at AXISMOVES- 2017. Secured first position in Technology Business and was awarded a winner’s trophy and a cash prize of Rs. 25 Lakhs. Organised by Axis Bank, at New Delhi, 2017. Vaishali and Arjun were felicitated by UAA (UDCT Alumini association) in 12 May 2017 for this achievement.</p>
		<p>“Microbial colorants/ pigments”, Vaishali M. Kulkarni, Arjun Singh Bajwa, Anand V. Patwardhan. Business proposal presented at IIGPFICCI DST- LOCKHEED Porogramme. Gold Medal and awarded cash prize of Rs. 1 Lakh. IIGP (India Innovation Growth Programme) is a joint initiative of Department of Science and Technology (GOI); Lockheed Martin Corporation; Indo-US Science and Technology Forum; Federation of Indian Chambers of Commerce and Industry (FICCI); Stanford Graduate School of Business and the IC2 Institute at the University of Texas. Website-http://www.indiainnovates.in/. New Delhi, 2017.</p>
		<p>Management Development Programme for Teaching Staff, 4 days, Faculty Development Programme, ICT, Mumbai</p>
		<p>Professional development training programme, 4 days Management Development Programme, IIT Trichy</p>
8.	V.H. Dalvi	<p>9th International Workshop on Crystallization, Filtration and Drying. Theme: Drying and Granulation Technology, Feb 2015, ICT, Mumbai</p> <p>International Workshop on Waste management of Chemical and Allied Industries, November 2014, ICT, Mumbai.</p> <p>The faculty development programme on " Machine Learning with Business Applications" with Primer on Big Data AI & Deep Learning, 5 days, Faculty Development Programme, ICT, Mumbai</p>
9.	R.D. Jain	<p>Ganatra P, Adithya Vs, Jain R and Dandekar P.(2019) FDM 3D printing as a tool for rapid prototyping and manufacturing of controlled release tablets. Poster presentation at 17th Controlled release society- Indian chapter at The Lalit, Mumbai. February 2019.</p> <p>Biosimilar Workshop, December 2017.</p> <p>Hands on Training Workshop on Nano Drug Delivery System : Synthesis, Characterisation and Cellular Imaging, ICT, Mumbai, India, October 2015 [Organizer and Convener]</p> <p>Organizer and Convener of Hands on Training Workshop on Nano Drug Delivery System : Synthesis, Characterisation and Cellular Imaging, ICT, Mumbai, India, October 2015</p> <p>Organizing Committee member of ‘Contest of Ideas’ held during 2nd Innovation Networking-Summit and Exhibition conducted on April 16, 2016 at Institute of Chemical Technology, Mumbai</p>
10.	G.D. Yadav	<p>Attended Refresher course, 12th Nov 2018-1st Dec 2018, HRDC, Mumbai University</p> <p>Attended NRCE Workshop (PMMMNMTT), MHRD, on Identification of Subject Wise Resources for Teachers, 6-8 June 2018, NIEPA, New Delhi, NIEPA, New Delhi</p> <p>Two days’ Workshop on statistical design of experiments organized by department of dyestuff Technology, ICT Mumbai Funded by TEQIP III</p> <p>HRDC, 21 days, Mumbai University, 12 Nov- 1Dec 2018</p> <p>Identification of Subject Wise Resources for Teachers, 3 days, NIEPA, 6-8 June (2018-2019), New Delhi</p>
11.	G. S. SHANKARLING	<p>Two days’ workshop on “Pigment Finishing and Printing Technology” & “Effluent Treatment and Processing”, held on 13th & 14th Sept 2016 at Institute of Chemical Technology, Mumbai.</p> <p>International convention on colorants (COC), 1 day, Department of Dyestuff Technology, The Club, Andheri</p> <p>Dyes Day, 1 day, Department of Dyestuff Technology, Matunga, Mumbai</p> <p>Coordinator of the Dyes department for the Industry Readiness Programme, 1 day,</p>

		Department of DyestuffTechnology, ICT Mumbai
		Dihydroquinazolinone based “turn-off” fluorescence sensorfor detection of Cu ²⁺ ions, NSFAC, 1 day, ICT Mumbai
		Wealth creation opportunitiesthrough sustainable waste management, Oral presentation, Tirupati
12.	N. SEKAR	Attended the workshop on Introducton to Gaussian; Theory and Practice at Delhi, India.
		Dyes Day, 1 day, Department of DyestuffTechnology, Matunga, Mumbai
		Participated in Teaching- Learning Workshop organized by the Institute of Chemical Technology, Matunga, Mumbai under TEQUIP-II in Sept.2016.
		Introducton to Gaussian;Theory and Practice, 7 days Kolkata
13.	SATYAJIT SAHA	Teaching and Learning Workshop, ICT Mumbai, 24th Sept, 2016
		Dyes Day, 1 day, Department of DyestuffTechnology, Matunga, Mumbai
		Orientation Programme, HRDC, Mumbai University, 5th Jan to 2nd Feb 2017
		Effluent Treatment andProcessing, Seminar, Coordinator, ICT Mumbai
		Teaching and LearningWorkshop, 24 Sep 2016, ICT Mumbai
		Workshop on Pigment Finishing and Printing Technology, Coordinator, ICT Mumbai, 13th Sept, 2016
14.	Prof. Amit P. Pratap	One week short term Course under QIP on “Research Methodology for Engineering and Management Research” Organized by Production Engineering Department, VJTI during July 9-14, 2018
		National Workshop on “NBA and NAAC Accreditation for TEQIP-III funded Universities and Institutions” Organized by Engineering Staff College of India (ESCI), during July 18-22, 2018 at Lonavala, Maharashtra
		One week short term Course under TEQIP on “Tailoring Technologies for Rural Sector: Development and Dissemination” sponsored by Ministry of Human Resource Development, Govt. of India organized by Centre for Educational Technology (CET) held at Indian Institute of Technology Guwahati (IITG) during 29/10/2018 to 02/11/2018
		Professional Development Programme on “Holistic Development for Personal & Professional Excellence” at ESCI, Hyderabad during 29/07/2019 to 31/07/2019 .Workshop on “Polymer and Polymer Nano Composites Processing” organized by R. V. College of Engineering, Bengaluru under TEQIP-II during June 27, 2016 to July 02, 2016
		raining Programme on “Mentoring for Faculty of Engineering and Faculty of Institutes” organized by Department of Pharmaceutical Sciences and Technology under TEQIP-II during December 12-16, 2016 at ICT
		AICTE (Under QIP) Sponsored One Week Faculty Development Programme on Wave Theory & Applications” organized by Electrical Engineering Department during January 2 – 7 January2017 at VJTI, Mumbai
		AICTE (Under QIP) Sponsored One Week Faculty Development Programme on Wave Theory & Applications” organized by Electrical Engineering Department during January 2 – 7 January2017 at VJTI, Mumbai
		Finishing School cum Training Program on “Preparative Processing and Analysis of Biochemicals & Bio/Pharmaceuticals” organized by DBT-ICT CEB during March 14-18, 2017 at ICT, Mumbai.

		One Week Training Program on “Patent Filing procedure Proceedings of Patents, Introduction to Patent specification, Patent Search with exercise, Trademarks, GI filing procedure” Organized by The Rajiv Gandhi National Institute of Intellectual Property Management (RGNIPM – Central Government Institute under the Ministry of Commerce & Industry during 28/08/2017 to 01/09/2017 at Nagpur
		One week short term programme under QIP on “Advanced Textile Materials – Textile Composites and Nanotechnology in Textiles” held at Textile Manufactures Department, VJTI during 30th October 2017 to 04th November 2017
		One week short term Course under QIP on “Industrial Tribology” held at Mechanical Engineering Department, VJTI during December 11-5, 2017
		One Week Training Program on “Pedagogy and Management Capacity Enhancement Programme for Teaching Staff” Organized by Engineering Staff College of India (ESCI), during 25/02/2018 to 01/03/2018 at Goa.
		One week short term Course under QIP on “Research Methodology for Engineering and Management Research” Organized by Production Engineering Department, VJTI during July 9-14, 2018
		National Workshop on “NBA and NAAC Accreditation for TEQIP-III funded Universities and Institutions” Organized by Engineering Staff College of India (ESCI), during July 18-22, 2018 at Lonavala, Maharashtra
		One week short term Course under TEQIP on “Tailoring Technologies for Rural Sector: Development and Dissemination” sponsored by Ministry of Human Resource Development, Govt. of India organized by Centre for Educational Technology (CET) held at Indian Institute of Technology Guwahati (IITG) during 29/10/2018 to 02/11/2018
		A Training Programme ON “NBA” under TEQIP-II at CE Conference Room, ICT, Mumbai, December 4- 5, 2015 for NBA Co-Ordinators of All Departments of ICT
		A Training Programme ON “NBA” under TEQIP-II at Lecture Room CE, ICT, Mumbai, February 5-6, 2016 for All Faculty Members of ICT.
		Certificate Refresher Course on Oleochemicals: Basic Chemistry, Derivatives and Applications during March 16-17, 2017 at ICT, Mumbai

15.	Dr. JYOTSNA WAGHMARE	Workshop on Creative and Formulation of Natural and Organic Cosmetics, Courtyards by Marriot Mumbai, ISCC, 28th-29th of November 2018
16.	Prof. K. S. Laddha	Short term training program on emerging trends in Pharmaceutical research: approaches and training at Parul university Wadodara Gujarat on 31 March, 2018. Workshop on "Extraction and isolation of Phytoconstituents, Extraction Techniques and skills, 8/09/2018 to 9/9/2018.

17.	Prof. S. V. Joshi	Workshop organized on " Improving communication Interpersonnal skills and time management w.r. t. Pharma Industry, Application on Thermal Analysis in Pharma Industry, 19/03/2018 to 21/03/2018
		Hands on training on Animal cell culture and molecular techniques using the human / cancer cell lines for various expts, Attend Cell culture Workshop at International Center for Stem Cells, Cancer and Biotechnology, Pune. 16/07/2018 to 22/07/2018.
		Two days International workshop on Quality by design Practicle Implementation of Tools &Tractics of QbD& L6 in Pharma Product Development, Learn the basic of QbD, 12/10/2018 to 13/10/2018
		Improving communication Interpersonnal skills and timemanagement w.r. t. Pharma Industry, Application on Thermal Analysis in PharmaIndustry, 12 days, Workshop organized , 10-22 March 2018
		Quality by design Practicle Implementation of Tools &Tractics of QbD& L6 in Pharma Product Development,Learn the basic of QbD, International workshop,12-13 Oct 2018
18.	DR. UDAY S. ANNAPURE	Attended Workshop on Food Preservation Techniques organized by BIRAC in collaboration with Institute of Chemical Technology at ICT, Mumbai during February 26–28, 2018
19.	PROF. V.K. RATHOD	Convener, American Chemical Society School Festival (Workshop), 2018
		Food PreservationTechniques, 2 days BIRAC, Feb 2019, ICT, Mumbai
20.	SHRI M.A.K. KERAWALLA	TEQIP-III FDP on “National workshop on NBA and NAAC forTEQIP- III funded Universities and Institutions Engineering Facxulty Engg, Staff College of India, 18-22 July 2018, Lonavala Maharashtra.
21.	Prof. Dr. Ravindra D. Kulkarni	Nutritional Properties of Palm & Other Oils, Workshop on Palm Oil, SNTD Campus, Juhu, Palm Oil Council, Malysia& OTAI, Jan.22,2018
		Oleochemicals in Food, Polymer and Plastics Industries, Certificate Course on Oleochemicals: Basic Surfactant Mediated Reactive Crystallization for Polymorph Selective Synthesis of Nanomaterials, Twinning Programme under TEQIP-III, BITS-MESRA, RANCHI, Jan. 17, 2018
		Basic Oleochemical Transformations-Esterification transesterification, hydrogenation, polymerization, Oxidation Dept. of Oils
		Chemistry, Derivatives and Applications. Oleochemicals & Surfactants Tech., ICT, Mumbai & OTAI (WZ), India. March 16 and 17, 2017
22.	Dr. (Mrs.) Usha Sayed	Characterization of Medical Textile Products National level workshop, National level workshop , 06th to 07 th October, 2017.

<p>23. Prof (Dr). Ravindra D. Kale</p>	<p>Personality Development, workshop by Mr Yogesh Barot of Raymonds Ltd., KV Auditorium, ICT, Mumbai, 16th March 2018</p>
	<p>Attended AICTE sponsored one week short term course on "Research Methodology for Engineering Management Research" held from 9th to 14th July, 2018 at VJTI, Matunga. Event Organized</p>
	<p>Organized TEQIP-III sponsored " Woolmark Wool Education Course" lecture by Mr RAJESH BAHL of SEAM CONSULTING GROUP on 12th March 2018 in KV Auditorium, ICT, Mumbai.</p>
	<p>Organized TEQIP-III sponsored " Personality Development " workshop by Mr Yogesh Barot of Raymonds Ltd., Thane on 16th March 2018 in KV Auditorium, ICT, Mumbai.</p>

4.4 Research and Development
4.4.1 Sponsored Research (30)

Total Marks: 30.00
Institute Marks: 15.00

Assessment year 2021-22

Project Title	Duration	Funding Agency	Amount(in Rupees)
Synthesis and characterization of novel photo-sensitizer textile dyes with photoinactivation ability of viruses and microbes: and expeditious approach to make selfcleaning and self sterilizing fabric.	3 years	BRNS	₹ 30,30,000.00
Sustainable synthesis of N-heterocycles based speciality chemicals	4 years	DST-PURSE-2020	Total grant: Rs 265000000.00
The process development and sustainable synthesis of 1-aminoanthraquinone and its derivatives support the indian speciality chemicals industry	4 years	DST-PURSE-2020	Total grant: Rs 265000000.00

Assessment Year : 2020-21 (CAY)

Project Title	Duration	Funding Agency	Amount(in Rupees)
FIST	5 Years	DST	20850000.00
Deep Eutectic Solvents as a greener media for oxidation reactions	12 months	TEQIP-3	440000.00
Organic Electronics	3 years	SERB	3758480.00
			Total Amount(X): 25048480.00

Assessment Year: 2019-20 (CAY)

Project Title	Duration	Funding Agency	Amount (in Rupees)
FIST	5 Years	DST	20850000.00
Deep Eutectic Solvents as a greener m	12 months	TEQIP-3	440000.00
Organic Electronics	3 years	SERB	3758480.00
Total Amount(X): 25048480.00			

Assessment Year: 2018-19 (CAYm1)

Project Title	Duration	Funding Agency	Amount (in Rupees)
Deep Eutectic Solvents as a greener m	18 months	TEQIP-3	635000.00
Synthesis and Purification of Spectrosc	1 Year	DAE-BRNS	636800.00
Laser Dyes	3 years	DAE-ICT	3482500.00
DSSC3	3 years	DST - CERI	4190412.00
Development of Graphene-based Supe	1 year 6 months	ONGC	1470000.00
Development spongy Graphene materi	1 year 3 months	ONGC	1459000.00
Green approach towards the synthesis	2 years 1 month	TEQIP	857073.00
Design and synthesis of novel organic	1 year (2018-19)	ICT Mumbai-Golden Jubilee Research	40000.00
Process intensification by continuous-fl	20 months	TEQIP-III	750000.00
Novel approach to make tailored desig	3 years (2018-2021)	CSIR	1298667.00
Biocolourants: A promising source for	1.5years (2018-2020)	World Bank and GOI	625000.00
Certificate Course in Chemistry and Te	4 months (May2018-August2018)	Aditya Birla	1000000.00
To evaluate the efficiency of natural dy	4 months (May2018-August2018)	Hindustan Unilever Limited	1260000.00
Surfactant	From 2018	Private	120000.00
Bioenergy, Fertilizer and Clean Water f	3 years	BBSRC, UK	11088912.64
J.C. Bose Fellowship	5 years	DST- Science and Engineering Resear	8250000.00
A compact and cost-effective technolo	1 years	Indo US Science and Technology – IIG	1000000.00
Pyrolysis of biomass, coconut shell an	4 years	Shri. K. V. Mariwala - Mariwala Trust	2600000.00
Integration of Sustainability Concepts i	2 years	WIPRO Foundation	456250.00
Lab scale synthesis of fine and bulk ch	1 year	VOL, Mumbai	11.80
Lab scale synthesis of fine chemicals	1 year	VOL, Mumbai	12.58

Water and wastewater treatment using	3 years (2019-2022)	Department of Science & Technology	7448000.00
Hydrodynamic cavitation based intensi	2 years (2019-2022)	Department of Science and Technolog	1302000.00
Evaluation of advanced technologies fo	3 years (2018-2019)	Aditya Birla Science and Technology C	1167000.00
Surface studies on lean amine solvent	2 yrs	Amines and Plasticizers	253000.00
Oil water interfacial tension of polymeri	1 yr	Hindustan Unilever Ltd	1391000.00
Study of Interfacial properties of oil and	6 months	DOW Chemical International Pvt.Ltd.	337000.00
Development of superior absorbents fo	28th March 2019 to 27th March 2022	Center for High Technology	8556960.00
Hydrogen production from macroalgal	1st October 2018 to 31st March 2020	TEQIP Phase 3	710000.00
Improved hydrogen production from bi	3 years	Department of Science and Technolog	4062696.00
Study on new green CO2-capturing sol	3 years	DST-DBT (Mission Innovation India - I	5791680.00
Catalytic aqueous-phase reforming of	3 years	DST-DBT (Mission Innovation India - I	5080320.00
Use of composite foam to tackle the pr	2 years	ONGC	1800000.00
Study of Forward Osmosis related to S	3 years	-	2400000.00
Dehydrogenaton reactions for industria	4 years	-	3000000.00
Development of PCM Poultry Warmer f	August 2018 – December 2019	Covestro India Pvt Ltd	500000.00
Preclinical Evaluation of Full Thickness	07/18-07/20	Rajiv Gandhi Science and Technology	1400000.00
Development of Hydrodynamic flow focu	01/18-01/21	ICT-DAE	7020800.00
Dehydrogenation reactions for industri	4 years	-	3000000.00
			Total Amount(Y): 96440095.02

Assessment Year: 2017-18 (CAYm2)

Project Title	Duration	Funding Agency	Amount (in Rupees)
Synthesis and Purification of Spectros	1 Year	DAE-BRNS	730515.00
Fluorescent Dyes	3 years	WRA	1917000.00
Synthesis of graphene based bio-adso	3 years	CSIR	2984000.00
Design and Synthesis of Novel Organi	3 years (2015- 2018)	SERB-DST	2900000.00
A Novel Approach Of Rational Catalys	3 years (2016-2019)	CSIR	2546000.00
Co-operative Organocatalysts for Ena	2 years (2015-17)	UGC	600000.00
Synthesis and application of novel wat	2 years (2016 - 2018)	UGC	600000.00
Synthesis and characterization of amp	3 years (2015 - 2018)	DST-SERB	2030000.00
Novel Reactive Dye System Based on	3 years	Ministry of Textiles	2748000.00
Development of Pt alloy based electro	5 years	DST Inspire	3500000.00
Development and characterization of s	3 years	BARC/DAE	102000000.00
Scale Up Studies for Production of Bio	2017-19	Naval Materials Research Laboratory (1370770.00
Novel Oleochemicals and its Applicatio	2017-19	M/s Bio Sols India Pvt. Ltd., Mumbai	3139040.00
Synthesis and Applications of Newer N	2017-20	M/s Anshika Polysurf Ltd., New Delhi	2354280.00
Biofuel and Natural Wax Related Prod	2017-21	M/s Kedia Organic Chemicals Pvt. Ltd.	3139040.00
Guerbet/ Branched Alcohols	2017-18	M/s Godrej Industries Ltd., Mumbai	295000.00
Processing of Vegetable Oil Refinery a	2017-18	DST-WMT, New Delhi	2118528.00
Enhanced Low Temperature Clarity of	Ongoing	SYNTHITE, Kolenchery, Kerala	340000.00
Roseheep Oil seed Extraction	Ongoing	Kumar Metals, Thane	300000.00
Manufacture of Polyol ester	Ongoing	SUMWIN Global, Malaysia	1100000.00
Cationic Polymers	Ongoing	Godrej Industries, Mumbai	500000.00
Explorations of Metallic Soaps for dive	Ongoing	Transpek-Silox Industry Pvt. Ltd., Vado	590000.00

Analysis of Samples 'Kolliwax' HCO, '	Sept-oct2017	Directorate of Revenue Intelligence, M	50000.00
Identify and Validate solutions within a	2016-2018	Private	120000.00
Extraction of Volatile oil from Orange P	One and half tear	Rajiv Gandhi Science and Technology	1949250.00
Development of Novel stimuli responsi	15 months	Johnson and Johnson Pvt. Ltd	3313125.00
Development of Controlled Release (C	36 months	DSIR	15955000.00
Studies in surface sterilization of spice	November 2017-November 2019	DSTinternational bilateral co-op divisio	2648000.00
Parametric study and data analysis in	April – September 2017	Godrej & Boyce Mfg Co Ltd, India	200000.00
Mitigation of water problems in Ausa to	2 years	Department of Science & Technology,	17300000.00
Sustainable processes for the develop	2017 – 2020	Department of Science and Technolog	7500000.00
Utilization of Reetha fruit for value add	3 years	RGSTC	6600000.00
Synthesis of terpene derivatives	1 year	Mangalam Organics, Mumbai	1500000.00
Syntheis of FDCA	1 year	GBL, Mumbai	1570000.00
Improved process for CaSO4 crystallis	3 years (2017-2020)	Department of Atomic Energy-ICT	3500000.00
Improved processing of camphor, terp	3 years (2017-2020)	Mangalam Organics Ltd.	1500000.00
Cold storage facility for storage of fruit	5 years	Rajiv Gandhi Science and technology	12300000.00
Rice bran Oil refining	3 years	Marico	2700000.00
p-Hydroxy benzaldehyde production fr	2016	Atul Ltd.	1150000.00
Purification of aqueous effluents from r	6 months	VA Tech Wabag	1618800.00
Polymeric Nanocarrier for siRNA Deliv	10/12-10/17	DBT	3250000.00
Designing & Commercialization of affo	03/18-03/20	BIRAC-BIPP	6544000.00
New Formulations from Cannabis sp	07/18-07/20	Akseera Pharma, Canada	2285625.00
Quantification of Coating Material on E	05/16-05/17	FMC, Bengaluru	197856.00
Characterization of Pharmaceutical Ex	03/14-04/17	FamyCare, Mumbai	363951.00

Activity Reduction of Peptidase Enzym	03/17-07/18	Anya Biopharma, Taiwan	5606600.00
Interaction of API and Excipient	02/17-06/17	Wockhardt, Aurangabad	91080.00
Structural Characterization of Recomb	06/18-10/18	Stelis Biopharma,Bengaluru	1095447.00
Evaluation New Probiotic Composition	02/18-10/18	SA Pharmachem, Mumbai	3109300.00
To study the effect of increasing the en	05/17-10/18	Himedia Lab,Mumbai	442875.00
Characterization of aggregates MW re	07/17-02/18	Hetero Biopharma, Hyderabad	302500.00
HMWP Characterization of Insulin Pro	07/17-07/19	Biocon, Malaysia	4102780.00
			Total Amount(Z): 246668362.00

Cumulative Amount (X + Y + Z) = 368156937.0

4.4.2 Sponsored Research (15)

Institute Marks: 15.00

Assessment Year: 2019-20 (CAY)

Project Title	Duration	Funding Agency	Amount (in Rupees)
Process and product development	1 year	Marico Ltd.	226800.00
Process and product development	-	Aegls Logistics Ltd.	216000.00
Process and product development	-	Aegls Logistics Ltd.	648000.00
Process and product development	-	Asian Paints Ltd.	102667.00
Process and product development	-	Amarjyot Chemical Corporation	108000.00
Process and product development	-	Marvel Drugs Pvt. Ltd	251333.00
Process and product development	-	Hujovrat Alkalies and Chemical Ltd	128333.00
Process and product development	-	Kesar petro products Ltd.	102667.00
Process and product development	-	Hodavari Biorefineries Ltd.	180000.00
Process and product development	-	Mangalam Organics Ltd.	45000.00
Process and product development	-	Indoamines Ltd.	180000.00
Process and product development	-	IPCA lab. Ltd.	162000.00
Process and product development	-	IPCA lab. Ltd	108000.00
Process and product development	-	Heubach colour pvt. Ltd.	108000.00
Process and product development	-	Yog Chemical Pvt. Ltd.	113400.00
Process and product development	6 months	Mitsubish Chemicals corporation	155550.00
Process and product development	-	Heubach Colour Pvt. Ltd.	54000.00
Process and product development	-	Serra Fine chemicals	81000.00
Process and product development	-	Astik Dyestuff Pvt. Ltd.	388800.00
Process and product development	1 year	SBL Colour Tech Pvt. Ltd.	513120.00
Process and product development	-	Signet Chemicals Corporation Pvt. Ltd.	162000.00

Process and product development	-	Abhishek Thread links	23600.00
Process and product development	-	Exotic Fruits Pvt. Ltd.	90000.00
Process and product development	-	Marico Ltd	43200.00
Process and product development	15 days	OEC Project Manager (ONGCenergy)	40000.00
Process and product development	3 months	OEC Project Manager (ONGCenergy)	120000.00
Process and product development	6 months	M.C.Dwivedi	50000.00
Process and product development	-	Mahavir Chemicals	54000.00
Process and product development	-	Jayant Agro Organics Ltd.	154000.00
Process and product development	-	BASF india ltd.	32400.00
Process and product development	-	Wipro enterprises Ltd.	324000.00
Process and product development	1 month	Whrilwind Project	77000.00
Process and product development	1 year	Sudarshan Chemicals	77000.00
Process and product development	1 month	Super fresh	107800.00
Process and product development	1 year	Zoetis pharmaceuticals Pvt. Ltd	324000.00
Process and product development	-	Essilar R&D	444283.00
Process and product development	-	Wool Research association	27000.00
Process and product development	-	Gopinath Chemicals	113400.00
Process and product development	-	Biocon Ltd.	652788.00
Process and product development	-	Sakar Healthcare Pvt. Ltd.	378000.00
Process and product development	3 months	Mangalam Drugs and Organic Ltd.	648000.00
Process and product development	-	Hindustan Unilever Ltd.	108000.00
Process and product development	-	Hindustan Unilever Ltd.	54000.00
Process and product development	1year	Prasol Chemicals Pvt. Ltd.	31333.00

Process and product development	-	Egulnox Environments Pvt. Ltd.	77000.00
Process and product development	-	Vinal Organics Ltd.	57333.00
Process and product development	-	Aradhana Energy Pvt. Ltd.	57333.00
Process and product development	-	Srichem Laboratories	198281.00
Process and product development	-	Organics Aromatics Pvt. Ltd.	162000.00
Process and product development	-	Great Pacifics Exports Pvt. Ltd.	17700.00
Process on Elexcite-boron ore	2 months	Indo-Borax chemicals Ltd.	120000.00
Process and product development	-	Unilever Industries Pvt. Ltd.	108000.00
Process and product development	-	Galaxy Surfactant Ltd.	238320.00
Process and product development	-	K.V. fire Ltd.	162000.00
Process and product development	-	Aditya Birla Science and Technology P	486000.00
Process and product development	-	Asian Paints Ltd.	216000.00
Process and product development	4 months	Marico Ltd.	140000.00
Process and product development	-	Unilever Industries Pvt. Ltd.	54000.00
Process and product development	-	Pidilite Industries	162000.00
Process and product development	-	Vivid Global Industries Ltd.	162000.00
Process and product development	-	Green Galaxy Global Environment Ser	89984.00
Process and product development	-	S.S. Techno Ltd.	54000.00
Process and product development	-	Kesar petro products Ltd.	145800.00
Process and product development	-	Cipla House	129600.00
Process and product development	-	Hisun adhesive	129600.00
Process and product development	-	Indico remedies Ltd.	194400.00
Process and product development	-	Supreme Petro chemicals Ltd	97200.00
Process and product development	-	Shyam Chemicals Pvt. Ltd.	162000.00

Process and product development	-	Hikal Ltd.	213120.00
Process and product development	-	Late Parshuram Environment Protectio	324000.00
Process and product development	-	S.S. Techno Ltd.	154000.00
Process and product development	-	Vardhaman Dyestuffs	162000.00
Process and product development	-	Rallys India Pvt. Ltd.	594000.00
Process and product development	-	Koshorchellb	81000.00
Process and product development	-	Nacil Ltd	576000.00
Process and product development	-	Center for High technology	150000.00
Process and product development	-	Hindustan Unilever	162000.00
Process and product development	-	Hindustan Unilever	81000.00
Process and product development	-	B.R. Specialities	162000.00
Process and product development	-	Rubamin Ltd.	108000.00
Process and product development	-	Galaxy Surfactant Ltd.	63722.00
Process and product development	-	Ags logistics Ltd.	486000.00
Process and product development	-	Ags logistics Ltd.	216000.00
Process and product development	-	Ags logistics Ltd.	648000.00
Process and product development	-	Encore Natural polymers	194000.00
			Total Amount(X): 15803867.00

Assessment Year: 2018-19 (CAYm1)

Project Title	Duration	Funding Agency	Amount (in Rupees)
Process and product development	6 months	Aditya Birla Science and Technology	216000.00
Process and product development	1 year	Morico Ltd	43200.00
Process and product development	9 months	Sutnwin solutions Malaysia SDN BHD	50000.00
Process and product development	1 month	Teyo Engineering India Pvt. Ltd	81000.00
Process and product development	1 year	A.B.S.T.C	972000.00
Process and product development	1 year	Morico Ltd	188622.00
Process and product development	1 year	K.V. fire	162000.00
Process and product development	1 month	Hindustan Unilever Ltd	66733.00
Process and product development	1 year	Sulfast Chemical	243000.00
Process and product development	1 year	Nacil Ltd	360000.00
Process and product development	2 months	Panorama	46200.00
Process and product development	1 year	Eternis fine chemicals	1620000.00
Process and product development	1 year	Aditya Birla Science and Technology	67500.00
Process and product development	1 year	Margolan Organics	291600.00
Process and product development	1 month	Gangwal Chemicals Pvt. Ltd	540000.00
Process and product development	3 months	ADVY chemicals Pvt. Ltd	324000.00
Process and product development	6 months	Salicylates and Chemicals Pvt. Ltd	10125.00
Process and product development	1 year	Sahastraa Exports Pvt. Ltd	52500.00
Process and product development	18 months	Municipal corporation and Greater Mu	662842.00
Process and product development	9 months	Sutnwin solutions Malaysia SDN BHD	50000.00
Process and product development	6 months	Kumar Metal Industries Pvt. Ltd	67500.00
Process and product development	4 months	Synthite Kolenchary	67500.00

Process and product development	1 year	Pidilite Industries Ltd	161990.00
Process and product development	1 year	A.B.S. & T.P Ltd	67500.00
Process and product development	1 year	Encore National Polymer Pvt. Ltd	1944000.00
Process and product development	1 year	Nacil Ltd.	376000.00
Process and product development	1 time	A-one Organic pigments Pvt. Ltd	54000.00
Process and product development	1 time	Borax Manufacture association of Indi	462000.00
Process and product development	1 year	Nippon Synthetic Chemicals Ltd.	509755.00
Expert Advice	5 months	Borase Manufacturers	60000.00
Expert opinion	6 months	Sun farben	50000.00
Product Development	6 months	Deepak Nitrite	400000.00
Process and product development	-	Signet chemicals corporation pvt. Ltd.	162000.00
Process and product development	-	Momai impex	54000.00
Process and product development	-	Sulfast Chemical	135000.00
Process and product development	-	Zoetis pharmaceuticals Pvt. Ltd	174400.00
Process and product development	-	Zoetis pharmaceuticals Pvt. Ltd	453600.00
Process and product development	-	Green galaxy Environmental service	5786257862.00
Process and product development	-	Supreme	162000.00
Process and product development	-	Excel industries	189000.00
Process and product development	-	Whirlpool lab India Ltd.	194400.00
Process and product development	-	Pushkar Chemicals and fertilisers	178200.00
Process and product development	-	Deepak nitrite Ltd.	194400.00
Process and product development	-	Hikel Ltd.	162000.00
Process and product development	-	S.A. Pharmachem pvt. Ltd.	675000.00
Process and product development	-	Srichem Laboratories Pvt. Ltd	192281.00
Process and product development	-	Gethi impex	648000.00

Process and product development	-	Kargil India Pvt. Ltd.	55080.00
Process and product development	-	United mud. Chem Pvt. Ltd	55080.00
Process and product development	-	Hindustan Unilever Pvt. Ltd	51000.00
Process and product development	-	AAK kamani	32400.00
Process and product development	-	I.G petrochem	150000.00
Process and product development	-	Amarjyot Chemical corporation	100000.00
Process and product development	-	Johnson Mathey Chemicals India Ltd.	250000.00
Process and product development	-	Jyoti om chemicals research Pvt. Ltd	59000.00
Process and product development	-	Mckinsey and Company	1944000.00
Process and product development	-	ONGC Energy Center	240000.00
Process and product development	-	ONGC Energy Center	80000.00
Process and product development	-	ONGC Energy Center	750000.00
Process and product development	-	ONGC Energy Center	760000.00
Process and product development	-	ONGC Energy Center	100000.00
			Total Amount(Y): 5804726270.00

Assessment Year: 2017-18 (CAYm2)

Project Title	Duration	Funding Agency	Amount (in Rupees)
Process and product development	6 months	Godrej and boyce Mgf.Co.Ltd	115000.00
Process and product development	1 year	Galaxy Surfactant Ltd.	327888.00
Process and product development	1 year	Moxico	367500.00
Process and product development	1 year	K.V.Fire	157500.00
Process and product development	1 year	Balmer Lawrie	154000.00
Process and product development	-	Kamdhenu Agrochem industries	35400.00
Process and product development	1 year	Nacil Ltd.	750000.00
Process and product development	6 months	SICIT 2000 SPA Italy	549238.00
Process and product development	3 months	Shrey Enterprises Pvt. Ltd.	15000.00
Process and product development	1 year	Zoetis pharmaceuticals Pvt. Ltd	308000.00
Process and product development	6 months	Priri Organics Ltd	145000.00
Process and product development	3 months	Y. Cube tech Pvt. Ltd	25200.00
Process and product development	6 months	Autus Internationals	50000.00
Process and product development	2 days	Ruba mill Ltd	105000.00
Process and product development	2 days	Ruba mill Ltd	108000.00
Process and product development	3,4 months	Ruba mill Ltd	108000.00
Process and product development	1 months	Glaxo Smith Kline	66780.00
Process and product development	3 months	Anya Biopharma	47938.00
Process and product development	3 months	Advy chemicals	315000.00
Process and product development	18 months	Municipal corporation and Greater Mu	258646.00

Process and product development	9 months	Reliance Industries	237320.00
Process and product development	9 months	Sutnwin solutions Malaysia SDN BHD	154000.00
Process and product development	1 year	Encore Natural Pvt. Ltd	1944000.00

Process and product development	6 months	Mr. Narendra Karhvat	354000.00
Process and product development	1 year	Nacil Ltd	576000.00
Process and product development	1 year	GMM Psoudler Ltd	972000.00
Process and product development	5 months	National Peroxide Ltd	310500.00
Process and product development	1 months	Bajaj Alliance Insurance Company Ltd	162000.00
Process and product development	6 months	Herman Finechem Ltd	157000.00
Process and product development	-	Wool Research association	105000.00
Process and product development	1 year	Essilar R&D Centre	450000.00
Process and product development	1 year	Sun Forben Incorporation	54000.00
Process and product development	1 months	Reliance Industries Ltd	405000.00
Process and product development	1 months	Aquapharma chemicals Pvt. Ltd	258750.00
Process and product development	2 years	Indichem Oil Corporation	540000.00
Process and product development	15 months	Indichem Oil Corporation	270000.00
Process and product development	15 months	J & J Pvt. Ltd	385700.00
Process and product development	1 year	Nippon Synthetic Chemicals	479400.00
Process and product development	18 months	Malladi Drugs & Pharmaceuticals	1000000.00
Process and product development	3 months	Malladi Drugs & Pharmaceuticals	500000.00
Product Development	6 months	Gharda Chemicals	75000.00
Product Development	6 months	Transition Incorporation	450000.00
Product Development	6 months	Essilor International	450000.00

Process and product development	-	Mangalam Organics Ltd.	236280.00
Process and product development	-	Navin Fluorine Int. Ltd.	124200.00
Process and product development	-	Wockhordt	31500.00
Process and product development	-	Bajaj Healthcare	16200.00
Process and product development	-	Salicylates and Chemicals Pvt. Ltd	22500.00
Process and product development	-	Godrej Industries	90000.00
Process and product development	-	Hindustan Unilver Ltd.	63000.00
Process and product development	-	Godrej Industries	31500.00
Process and product development	-	Frigoritico Allana Ltd.	47250.00
Process and product development	-	Indus Chemical Mumbai	31500.00
Process and product development	-	Aakk mamani pvt. Ltd	47250.00
Process and product development	-	BASF Industries Ltd	63000.00
Process and product development	-	Setco Automobiles	97630.00
Process and product development	-	GTF marit technology India Pvt. Ltd	45000.00
Process and product development	-	Pyrocrat system LLP	135000.00
Process and product development	-	Shreyas Chemicals	143750.00
Process and product development	-	Konsai Nerolac Paints India Ltd.	57500.00
Process and product development	-	Aarti drugs Pvt. Ltd	147500.00
Process and product development	-	Khaitan and co.	94500.00
Process and product development	-	Corporate R&D	540000.00
Process and product development	-	Siemens ltd	88200.00
Process and product development	-	Navin Fluorine	174000.00

Process and product development	-	Crystal Surfactant and Chemicals	103500.00
Process and product development	-	Marvel Drugs Pvt. Ltd	90000.00
			Total Amount(Z): 16819520.00

5. LABORATORIES AND RESEARCH FACILITIES (75)**TOTAL MARKS: 75.00****5.1. Adequate and well equipped laboratories in area of Program specialization****INSTITUTE MARKS: 30.00**

Sr. No	Name of the Laboratory	Specialized Equipment Name	Equipment details	Utilization details from the perspective of PO attainment
1	DRL	Autoclaves	Hastelloy – 300 mL, 1 lit	40
2	DRL	Autoclaves	SS 316 – 3 x 600 mL, 5 lit	40
3	DRL	Pressure reactor	-	40
4	DRL	Glass assemblies	-	90
5	DRL	Refrigerated & Heating Circulator	Julabo	90
6	DRL	Lyophilizer / Freeze dryer	-	40
7	DRL	Ice-Machine	-	90
8	DRL	Oven	-	90
9	DRL	Microwave reactors	-	75
10	DRL	Parr hydrogenators	300mL, 600 mL	40
11	DRL	Rotary evaporators	Heidolph	90
12	DRL	High vacuum	-	90

5.2. Research facilities / centre of excellence(30)

INSTITUTE MARKS:30.00

Sr. No	Name of the Facility	Specialized Equipment Name	Equipment details	Utilization details from the perspective of PO attainment
1	Analytical Lab	Gas Chromatography (GC)	Chemito	100
2	Analytical Lab	HPLC	Jasco	100
3	Analytical Lab	FTIR	Jasco	100
4	Analytical Lab	UV-Visible	Jasco	100
5	Analytical Lab	Spectrophotometer	-	100
6	Analytical Lab	Spectrofluorimetry	Jasco	20
7	Analytical Lab	Particle size analyzer	Cilas	50
8	Analytical Lab	Thermo gravimetric analyzer	Simultaneous DSC – TGA, Waters	50
9	Analytical Lab	NMR	500 MHz (Sanctioned under Prime Minister's Project) Agilent	100
10	Analytical Lab	Cyclic Voltammetry	-	20
11	Analytical Lab	Simultaneous DSC-TGA	-	60
12	Analytical Lab	Polarimeter	-	20

13	Analytical Lab	Water contact angle	-	10
14	Analytical Lab	Resistivity meter	-	10
15	Pigment House	Analytical mill and homogenizer	-	60
16	Pigment House	Automatic draw down assembly	-	0
17	Pigment House	Automatic pigment Mueller	-	0
18	Pigment House	Automatic vibroshaker	-	40
19	Pigment House	Ball mill	-	40
20	Pigment House	Kneader	-	0
21	Pigment House	Mars mill	-	40
22	Pigment House	Planetary ball mill	-	40
23	Pigment House	Sand mill	-	40

5.3 Access to laboratory facilities, training in the use of equipment (15)**INSTITUTE MARKS: 15.00**

Name of Equipment / facility	Training Given By
FTIR	Bruker
NMR 500 MHz	Agilent
Flash chromatography	Yamzeen Flash
UV Visible Spectroscopy	JASCO/Anateck
Spectrofluorometer	JASCO/Anateck
Rotary Evaporator	IKA

6. CONTINUOUS IMPROVEMENT (75)

Total Marks 75.00

6.1. Actions taken based on the results of evaluation of each of the POs (25) INSTITUTE MARKS: 25.00

Being one of the premier departments in the country in flavour and perfumery, the knowledge, skill, and level of problem-solving aptitude of the graduating students are expected to be one of the best. The target value of the PO attainment was more than 70%. In the year of 2016, the PO attainment level in graduating batch was 76%. Therefore, it is clearly seen that the target is achieved. Moreover, an improved trend has been observed in the following year and more than 80% PO attainment was achieved in the year 2017 and 2018.

Comment on Overall improvement on PO Attainment

PO	Target Value	Attainment	Observation
PO1: An ability to independently carry out research or investigation and development work to solve practical problems			
PO1	>70%	2016 - 76.32 2017 - 81.97 2018-83.88 2019 – 82.85	New syllabus has been formed in the year 2017. The information related production, synthesis, of aroma chemicals, perfumes and flavour have been introduced. In addition, compulsory in-plant training has been included. Moreover, research component of the curriculum has been revised. Hence, higher trend in attainment in the following year was observed. It is expected that attainment of this PO1 would be more improved in graduating batch of 2019.
Action: Trying to maintain the level and targeting for higher.			
PO2: An ability to write and present a substantial technical report or document			
PO2	>70%	2016 - 76.04 2017 - 82.24 2018 – 78.21 2019 – 81.36 2020 – 74.43	The submission of technical report including PPT presentation, has been increased in revised syllabus from AY2017. This is mainly associated with Research I, II, III and Industrial Training. Inclusion of lab is also done to emphasize this PO2. It is expected that attainment of this PO2 will be higher in graduating batch of 2019.
Action: Trying to maintain the level and targeting for higher.			
PO3: Students should be able to demonstrate a degree of mastery over the area as per the specialization of the program. The mastery should be at a level higher than the requirements in the appropriate bachelor program			
PO3	>70%	2016 - 74.32 2017 - 80.30 2018 – 77.21 2019 – 82.85	The technology and scientific component on perfumery and flavour has been increased in the core and elective course in the revised syllabus from AY2017. Practical courses are designed in such a manner that give them on-hand training and make them skilled on formulations, blending ; olfaction and sensory education. The details of application based industrial Training also helped in solving practical problem related to flavour and perfumery. It was expected that attainment of the next year would be higher and much improved.

Action: Trying to maintain the level and targeting for higher.

PO4: The graduates will be able to apply knowledge of basic sciences of fragrance and flavors and engineering courses in getting solutions to science and technology for sustainability issues pertaining to perfumery and flavor industries. In addition, the graduates will be acquainted with the latest development on the subject, so should be able to profess as a researcher either take up higher studies, research & developmental work or entrepreneur.

PO4	>70%	2016 - 76.37 2017 – 81.91 2018- 78.88 2019 – 81.36 2020 – 74.43	Knowledge on experimental design, synthetic perfumes and flavour chemistry, production of aroma chemicals will additionally help in attaining improved PO4. In addition, application orientated practical, on- hand training on formulation, research and management based in plant training resulted in improved trend in the PO4 attainment in the following year. It is expected that attainment of this PO4 will be more improved in graduating batch of 2019.
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Action: Trying to maintain the level and targeting for higher.

Concern Raised from the AY 2016-17, or previous batches	Action Taken	Related PO
Science and Engineering component of the program	The component for Engineering Science Inthe entire curriculum was increased.	PO1 and PO2
Practical problem-Solving ability of students needs attention	The syllabus of all the technical courseshas been revised. Practical, in-plant training, elective syllabus has been revised. More research component has been included	PO1 PO2PO3, PO4
Quality of Project	The M.Tech Project Component has beendivided to Semester I, II and IV. Partial research components are distributed on Sem I and Sem II. Semester IV is entirelydevoted to research. More creative, innovation-oriented application-based research component has been included inthe thesis work.	PO1, PO2, PO3, PO4

Courses included in the new syllabus

Sr.No.		Courses Name
1	Sem1	PFP2001 – Olfaction and sensory education: inclusion of practical PFP2003 – Research I: Literature review on given project topic
2	Sem2	PFP2002 - Blending and Creation for Fragrance and Flavors PFP2004 – Research II: Proposing Research plan and experimenton given project topic.
3	Sem 3	PFP2005 – compulsory in-planting training (15 weeks to 6 months)
4	Elective	PFT2112 - Production of Aroma Chemicals PFT2012 - Synthetic perfumes and flavour chemistry PFT2009 - Technology and Science of Essential Oils

6.2. Improvement in Quality of Projects (10)**INSTITUTE MARKS: 10.00**

M. Tech from Department of Flavours and Perfumery, Graduated batch 2015-2017, 2016-2018, 2017-2019, 2018-2020 and 2019-2020.

A				
M. Tech from Department of Flavours and Perfumery, Graduated in 2015				
Sr. No	Roll Number	Name	Thesis title	Broad category of the subject
1	15PER2001	Surabhi Sunil Choudhary	1,8- Cineole Derivatives Using Deep Eutectic Solvents & Formulation Of Fragrance Blends.	Synthesis
2	15PER2002	Prachi Abhay Nagar	Extraction & Development of New Flavour	Processing, Product development & Analysis
3	15PER2003	Vaibhav Bajirao Patil	Green Synthesis & Application of Perfumery & Flavour Compounds	Synthesis & Application
4	15PER2004	Sania Milind Karanjkar	Selectivity Engineering in Synthesis of p-Cresyl Methyl Ether: Comparison of Batch v/s Vapour Phase Continuous Reactions	Synthesis
5	15PER2005	Akshada Dilip Thorat	Extraction of Flavour from Natural Waste	Processing, Analysis & Application
6	15PER2006	Radhika Vidyadhar Karve	Extraction of Essential Oil from Nutmeg Seeds, Encapsulation & its Applications	Processing, Product Development, Analysis & Application
7	15PER2007	Prashant Chakadhar Hendre	Study & Development of Essential Oil Nano Emulsion using Novel Approach	Product development Processing & Analysis

B				
M. Tech from Department of Flavours and Perfumery, Graduated in 2016				
Sr. No	Roll Number	Name	Thesis title	Broad category of the subject
1	16PER201	Aishwarya Ajay Patil	Graphene oxide supported metal catalyst for the hydrogenation of p- tertbutylphenol to p- tertbutylcyclohexanol, a fragrant molecule.	Processing, Product Development
2	16PER202	Devanand Rajkumar Patre	Creation of sugar replacementflavour by using high intensity sweeteners and reduction of sugar level in beverages by flavour route	Product Development
3	16PER203	Dhamee Paresh Joshi	Environmentally begin approach in synthesis of aromachemicals from furfural and 5- HMF and its application	Synthesis and Product Development
4	16PER204	Harsha Pradip Datey	Application of ionic liquid in synthesis of aroma compoundsand extraction of Cyperus scariosus oil.	Processing, Synthesis, Product Development
5	16PER205	Prachi Devidas Sadawarte	Utilization of Food industry waste for the extraction of theflavours and its application	Analysis, Application
6	16PER206	Pravin Ashok Garule	Study on ultrasound pretreatment method for extraction of essential oil fromPiper betel and its application	Analysis, Application
7	16PER207	Raghavendra Kishanrao Dharmadhikari	Extraction, Isolation and Characterisation of Essential oiland Coumarins from Aegle marmelos	Processing, Analysis
8	16PER208	Revathi Vijaykumar Nair	Fragrance Release study and application of ionic liquid in synthesis	Analysis, Application
9	16PER209	Saurabh Bhagwanrao Ambure	Separation of essential oil fromfruits of piper cubela and isolation of its components	Analysis, Processing
10	16PER210	Sushant Shriram Davane	Approach to obtain healthy savoury snack food.	Product Development, Analysis.

C				
M. Tech from Department of Flavours and Perfumery, Graduated in 2017				
Sr. No	Roll Number	Name	Thesis title	Broad category of the subject
1	17PER201	Govind Suryakant Bhumbe	Studies on <i>Zingiberofficinale</i> & Isolation of Zingerol	Processing & Analysis
2	17PER202	Kishan Babu Velambath	Synthesis of Jasminaldehyde via cross aldol condensation reaction using recyclable phase transfer catalysts	Synthesis
3	17PER203	Lubha Shailendra Deshmukh	Selective Oxidation of Furfural to 2-Furoic Acid using Vanadium Supported on Titanium Oxide as catalyst	Processing & Product development
4	17PER204	Pradeep Rajendra Tandale	Creation of Dairy Alternatives Flavour by using Flavouring Ingredients for Fat Replacement & Lactose Intolerance	Synthesis & Product development
5	17PER205	Pratap Arjunrao Kadam	Selectivity Engineering in Synthesis of Monoterpene Oxabicyclo-[3.3.1]-nonene from Limonene & Benzaldehyde using Solid Acids & Super Acids	Synthesis
6	17PER206	Ranjit Rohidas Jadhav	Extraction of Aroma Compounds from the Spice <i>Zanthoxylumrhesta</i> & Comparative Study of its Extraction Methods & Application	Processing & Application
7	17PER207	Smrithi Sampath kumar	Extraction of Flavour Compound from the <i>Hemidesmusindicus</i> using 8ultrasound: Process Intensification Studies	Processing & Application
8	17PER209	Sushil Sanjay Chaudhari	Synthesis & Application of Aroma Molecules by Using Various Oxidizing Agents	Synthesis & Application

9	17PER210	Vidula Vijay Kamble	Synthesis of Esters via an Environmentally Benign Route & Formulation of Jasmine Fragrance & its Applications	Synthesis & Application
10	17PER211	Ramrao Dnyanoba Khandare	Extraction of D-Limonene (Fragrance & Flavouring Compound) from the Citrus Industry Waste using Novel Technique- Ultrasound: Process Intensification Studies	Processing & Application

D	M. Tech from Department of Flavours and Perfumery, Graduated in 2018			
Sr. No.	Enrolment No	Student Name	Thesis Title	Broad Category of subject
1)	18PER201	Amit uttam navale	Synthesis of trichloromethyl phenyl carbinol acetate	Synthesis, analysis
2)	18PER202	Amol balu ugalmugale	Isolation of Allyl Isothicyanate from mustard seeds and its application in Perfumery and Flavours.	Isolation, analysis and application
3)	18PER203	Anuradha rajendra shewale	Synthesis of allyl ethers by reusable catalyst, characterization and application in Flavour and Fragrance.	Synthesis, characterization and application
4)	18PER204	Dinesh diliprao shinde	Study on cidal effect on fragrances foul odor and stability of fragrances.	Characterization, analysis study
5)	18PER205	Joselin kirupa dorathy david	Synthesis of Ambreolide from shellac or lac resins.	Synthesis, analysis, application
6)	18PER206	Kairavi devanand shinde	Development of new cosmetic product with the long lasting fragrance by utilization of Natural Ayurvedic Products. (Ubtan)	Development, application
7)	18PER207	Mayuresh shankar khamgal	Synthesis of Flavour and Fragrance compound via Mixed Oxide supported Multimetal Catalyst Hydrogenation of Furfural to yield 2-methyl furan.	Synthesis, analysis and application

8)	18PER208	Pravin sainath mogarkar	Extraction of oil from mahua seed. Extraction of sweetener from dried mahua flower.	Extraction, processing, optimization and application
9)	18PER209	Prajapati sambhajirao gaikwad	Synthesis of Perfume compound from alkali fusion and pyrolysis of Castor oil.	Synthesis, analysis and application
10)	18PER210	Prasad rajaram gaikwad	Studies in Process Flavour Development of Indian Traditional foods.	Product development, characterization
11)	18PER211	Prasad ashok jitkar	Utilization of waste flowers for obtaining perfumery derivatives, incense sticks and cosmetic products.	Synthesis, extraction, isolation, application
12)	18PER212	Radhika sanjay sonavane	Study of volatile constituents in Jeerakadyarishta.	Isolation, characterization
13)	18PER213	Rama balaji gabale	Extraction of Allicin From Garlic By Different Methods and Study of Long Lasting Effect of Allicin In different Amplicons.	Extraction, analysis, application
14)	18PER214	Rashmi ganesh tikhe	Novel odorants from renewable resources (Furfural).	Synthesis, isolation, analysis

E M. Tech from Department of Flavours and Perfumery, Graduated in 2019				
Sr. No.	Enrolment No	Student Name	Thesis Title	Broad Category of subject
1)	19PER201	Damini Kishor Nerkar	Extraction of aromatic bioactive from <i>Foeniculum vulgare</i> using Three phase method and its application in perfumery and flavour.	Processing, Extraction & Application
2)	19PER202	Aditya Sindhusagar Dhule	Design, Synthesis and odour evaluation of synthetic analogs of fragrance molecules.	Processing, Product development & analysis
3)	19PER203	Eshan Raju Dhyade	Development of Processed Flavour.	Process study, analysis
4)	19PER204	Gayatri Shivaji Dhere	Utilization of temple flower waste in preparation of value-added products.	Extraction, analysis, application.
5)	19PER205	Hemlata Dudhnath Shukla	Extraction of orange oil from orange peels and its optimization.	Extraction , processing, process optimization
6)	19PER206	Kalyani Machhindra Kute	Extraction of essential oil from temple waste flower and its application.	Extraction , processing, process optimization & application
7)	19PER207	Kiran Bhagwan Avhad	Isomerisation of alpha pinene oxide by using heterogeneous catalyst.	Synthesis, analysis, optimization
8)	19PER208	Mangesh Dilip Chaudhari	Enzymatic Aqueous Synthesis of Perfume Intermediates and its application.	Synthesis , analysis and application
9)	19PER209	Namrata Ravindra Vaidya	Synthesis of Mood elevating compounds- Linalyl acetate and its derivatives.	Synthesis, analysis, application
10)	19PER210	Pratik Sanjay Wakchaure	Development of Aromatic hair dye.	Processing, product development
11)	19PER211	Swapnil Shivaji Pawar	Synthesis of Maltol and its derivatives.	Analysis, product development, synthesis and application
12)	19PER212	Ruchika Sanjayrao Dapurkar	Utilization of floral waste for obtaining perfumery compounds and value-added products.	Extraction , processing, process optimization & application
13)	19PER213	Shahidunnisha Mohammed Anis Choudhary	Enzymatic synthesis of menthol by immobilization method.	Synthesis , application

14)	19PER214	Vishwanath Shirishkumar Solpure	Odour and Constitution: Synthesis of Homologs and Analogues of Vanillin.	Synthesis, analysis & product development
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F				
M. Tech from Department of Flavours and Perfumery, Graduated in 2020				
Sr. No.	Enrolment No	Student Name	Thesis Title	Broad Category of subject
1)	20PER201	Ajit Ashok Satwadhar	Lipase catalyzed synthesis of flavour esters : Process optimization	Processing, Synthesis & Application
2)	20PER202	Ashwin Nandkumar Mahajan	Extraction of star anise essential oil using deep eutectic solvent	Extraction, analysis, application.
3)	20PER203	Bhushan Suryakant Chavan	Recent Advancements in Isolation and Purification of Actives from Natural Spices	Extraction, analysis, application.
4)	20PER204	Chaitali Shailesh Garach	Use of Natural deep eutectic solvents for extraction of Cinnamon oil.	Extraction, analysis, application.
5)	20PER205	Drushti Vishwas Kute	Determination of volatile oil composition of various species of Indian mango leaf	Extraction , processing, process optimization
6)	20PER206	Firdous Fatema Mohammed Ayyub Rangrez	Synthesis of Fragrance molecules from 5-Hydroxymethyl furfural	Synthesis, processing, process optimization & application
7)	20PER207	Kalyani Dipak Auti	Encapsulation of fragrance/ flavor compound.	Synthesis, analysis, optimization
8)	20PER208	Mahesh Vaijanath Mitakari	Synthesis of Rose Crystal (fixative) and related compounds	Synthesis , analysis and application
9)	20PER210	Prajakta Mahendra Pinjarkar	Production of Perfume & Flavour by fermentation route	Synthesis, analysis, application
10)	20PER211	Prajyoti Pratham Kale	Flavour Generation through Thermal Processing.	Processing, Extraction, Application
11)	20PER212	Preeti Kamal Pradhan	Enzymatic Aqueous Synthesis of Perfume or Flavour Intermediates & its Application	Synthesis, Analysis and application
12)	20PER213	Riya Sudam Bhosle	Determination of Volatile Oil Composition of Indian Valerian.	Extraction, processing, process optimization & application

13)	20PER214	Shraddha Radhakisan Dighe	Determination of composition of volatile oil in <i>Feronia</i> spp. Growing in Nashik district.	Extraction, Analysis and application
14)	20PER215	Snehal Hiranman Dhokale	Antibacterial Perfume for Sanitary Napkins	Synthesis, analysis & Application
15)	20PER216	Sumit Ganesh Gundayya	Comparative studies on Extraction if sustainable extraction techniques based on plant based material	Extraction, Analysis and Application
16)	20PER217	Vishweshwarayya Bhimappa Duggatti	Extraction of Ester(Isoamyl butyrate) from banana peels	Extraction, Analysis and Application
17)	20PER218	Darshana Deelip Rode	Greener Techniques of the Extraction of Essential oils via ball milling & Application in health care products.	Extraction, Analysis and Application
18)	20PER219	Kakul Ravish Singole	Hydrogenation of Eugenol using graphene oxide based catalyst to give 4-propyl cyclohexanol.	Synthesis, Analysis & Application

- A steady improvement in quality of the project has been seen as it is evident from the gradually increasing average score of the students. The research project component is divided to Semester I, II and IV. Semester IV is entirely devoted to the research. Research projects are designed such a way that a students will be able to think and work independently. The process optimization, modelling, design and engineering component has been increased gradually in the project.
- Incorporation of more experimental design, various isolation, characterization and analysis using modern state-of-the art instrument in the Research component includes are facilitating the improvement.
- The thesis is thoroughly checked by two examiners (Internal and External) and it is being plagiarism checked prior to submission.
- The thesis is evaluated of 500 marks and the **Rubrics** for evaluation is given below.

Sr. No	Details	Max. Marks	Internal Examiner	External examiner
1.	Understanding of Research Area	70		
2.	Problem formulation/Experimental design/Mathematical Modelling	70		
3.	Quality of Work done	70		
4.	Analysis and Interpretation of Results	70		

5.	Quality of Thesis Submitted	70		
6.	Quality of Presentation	70		
7.	Answer to Question raised during Open Defence	80		
	Total	500		

Recommendation

The MTech thesis submitted by candidate is:

- Acceptable, may be regarded as final in present form.
- Acceptable, but with minor revisions.

6.3. Improvement in Placement, Higher Studies and Entrepreneurship (10)**INSTITUTE MARKS: 10.00**

Item	CAYm1(2018-19)	CAYm2(2017-18)	CAYm3(2016-17)
Total No of students admitted in first year(N)	10.00	10.00	7.00
No of students placed in the companies or government sector(X)	10.00	10.00	7.00
No. of students pursuing Ph.D. / JRF/ SRF(Y)	0.00	0.00	0.00
No of students turned entrepreneur in engineering/technology (Z)	0.00	0.00	0.00
Placement Index [(X+Y+Z)/N] :	1.00	1.00	1.00

Average Placement [(P1 + P2 + P3)/3] : 1.00 Assessment

[20 * Average Placement] : 20.00

Item	CAYm1(2018-19)	CAYm2(2017-18)	CAYm3(2016-17)
Total No of students admitted in first year(N)	10.00	10.00	7.00
No of students placed in the companies or government sector(X)	10.00	10.00	7.00
No. of students pursuing Ph.D. / JRF/ SRF(Y)	0.00	0.00	0.00
No of students turned entrepreneur in engineering/technology (Z)	0.00	0.00	0.00
Placement Index [(X+Y+Z)/N] :	1.00	1.00	1.00

Average Placement [(P1 + P2 + P3)/3] : 1.00 Assessment

[20 * Average Placement] : 20.00

6.4. Improvement in the quality of students admitted to the program (10)**INSTITUTE MARKS: 10.00**

Gate Score	2020-21(CAY)	2019-20 (CAYm1)	2018-19 (CAYm2)	2017-18(CAYm3)
Highest Score	28.5	163.00	388.00	36.00
Minimum Score	17.3	115.00	358.00	26.00

6.5. Improvement in quality of paper publication (10)

INSITUTE

MARKS:10.

- The cumulative impact factor of the journal publications has been increased from Graduating year 2017-18 to 2019-2020 .
- As discussed earlier, the quality of thesis work has been improved in last three years and it is reflecting through publications, as depicted in the table and the pictogram below.
- Inclusion of synthesis, characterization, characterization and application oriented project work into the research component resulted in the improved quality of research publication. Participation in workshop and various seminars added into their motivation for international standard research work also caused the improvement.

All the journals are of high standard international journals. The examples of journals include

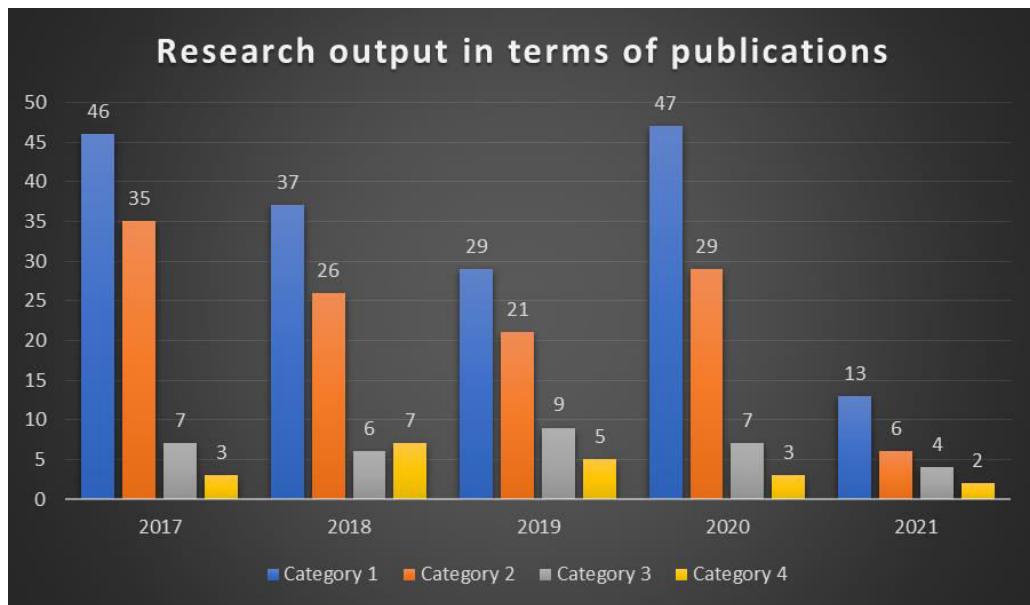
- ACS Sus Chem Eng
- ChemSusChem
- ACS applied Materials and Interfaces
- Green Chemistry
- Sensor and Actuators B: Chemical
- Carbon
- Trends in Food Science and Technology
- Ultra sonics Sonochemistry
- Chemical Communications
- Bioresource Technology

Table for the improvement in the quality of paper publication (2017 – 2021)

Total High Impact factor journals (IF>7) published since 2017 = 18

Sl. No.	Year	Impact factor of the journals			
		Category 1 (IF 1-3)	Category 2 (IF 3-5)	Category 3 (IF 5-7)	Category 4 (IF >7)
1	2017	46	35	7	3
2	2018	37	26	6	7
3	2019	29	21	9	5
4	2020	47	29	7	3
5	2021	13	2	4	2

Total High Impact factor journals (IF>7) published since 2017 = 20



6.6 Improvement in laboratories (10)

MARKS: 10.00

INSTITUTE

Whole laboratory building of the department of dyestuff technology has been refurbished to attain the state-of the art facility for research and learning and analysis in the area of Dyestuff and intermediates, Perfumery and flavour . The laboratory renovation works was sponsored by Colortex, India. This laboratory helps all the M.Tech. and Ph.D. students to carry out their research smoothly. The laboratory is equipped with thirteen fume hoods, all connected with centralised high vacuum pump and inert gasline. The laboratory has been designed following international safety standards. Laboratory has been equipped with various major and minor instruments required for the research and learning the subject. This laboratory helps all the M.Tech and Ph.D students to carry out their research smoothly.

Analytical lab in the building has been modernised with state of the art facilities for research and analysis required for many UG –PG practical. This renovated modern lab is used by UGs, PGs, and Ph.Ds and renovation led to more spacious laboratory place equipped state-of-art high tech instrumentation facilities pertaining to the dyestuff and perfumery and flavour. This makes research and learning an enjoyable experience for students and faculty both. Thus, this facility definitely helps in increasing output and efficiency, in terms of the research publication. This also reflects in students demand that more number of students are constantly getting job offers not only from domestic companies but also international companies.

Smart class room facility equipped with modern tools like WiFi connected projector and display system, conferencing facility. Availability of such facilities enables students to be connected to any online tutorial or experts from various reputed national and international universities.

Below are the modern instrumentation facilities in the department:-

Dye Sensitized Solar Cell



Electroluminescence- Photoluminescence



TLC Extractor and Mass Analyser



Flow Reactor





Annexure I

PROGRAM OUTCOMES (POs)

- PO1:** An ability to independently carry out research /investigation and development work to solvepractical problems.
- PO2:** An ability to write and present a substantial technical report/document.
- PO3:** Students should be able to demonstrate a degree of mastery over the area as per the specialization of the program. The mastery should be at a level higher than the requirements in the appropriate bachelor program.

Annexure II

Syllabus of the Course

Syllabus Structure -Master's courses

Perfumery and Flavour Technology

Semester I										
Content	Subject	Subjects	Credits	Hrs/Week			Marks for various Exams			
	Code			L	T	P	Continuous Assessment	Mid-semester Examination	Final Examination	Total
Core I	PFT 2101	Chemistry of Ingredients in Fragrance and flavors	3	2	1	0	10	15	25	50
Core II	PFT 2102	Technology of Fragrance and flavors	3	2	1	0	10	15	25	50
Core III	PFT 2103	Creation of Fragrance and flavors	3	2	1	0	10	15	25	50
Elective I			3	2	1	0	10	15	25	50
Elective II			3	2	1	0	10	15	25	50
Seminar and Critical Review	PFP 2002		3	0	0	6	Seminar -35 (Report-20 Presentation-15) Critical Review-15 (Report-10 Presentation-5)			50
Practical I	PFP200 1	Olfaction and Sensory Education	3	0	0	6	25	-	25	50
Research I	PFP200 3		6	-	-	12	-	-	-60 (Report) 40 (Presentation)	100
TOTAL			27	10	5	24	-	-	-	450

Sem I: Electives

1. **PFT 2104** Cosmetics Chemistry and Technology
2. **PFT 2005** Analytical chemistry and quality control techniques

Semester II										
Content	Subject	Subjects	Credits	Hrs/Week			Marks for various Exams			
	Code			L	T	P	Continuous Assessment	Mid-semester Examination	Final Examination	Total
Core I	PFT 2007	Natural products for Fragrance and flavors	3	2	1	0	10	15	25	50
Core II	PFT 2008	Marketing Management and Costumer Behavior	3	2	1	0	10	15	25	50
Core III	PFT 2108	Application of Fragrance and flavors	3	2	1	0	10	15	25	50
Elective III			3	2	1	0	10	15	25	50
Elective IV			3	2	1	0	10	15	25	50
Practical II	PFP 2002	Blending and Creation for Fragrance andFlavors	3	0	0	6	25	-	25	50
Research II	PFP 2004		9	-	-	18	-	-	90 (Report) 60 (Presentation)	150
TOTAL			27	10	5	24	-	-	-	450

Sem II: Electives:

1. **PFT2009** Technology and Science of Essential Oils
2. **PFT2013** Separation process in perfumes and flavor industry
3. **PFT2012** Synthetic perfumes and flavor chemistry

4. **PFT2112** Production of Aroma Chemicals

Semester III										
Content	Subject Code	Subjects	Credits	Hrs/Week			Marks for various Exams			
				L	T	P	Continuous Assessment	Mid-semester Examination	End-semester Examination	Total
Core I	PFP2005	In plant training (15 Weeks to 6 months)	30			40			450	450

Semester IV										
Content	Subject Code	Subjects	Credits	Hrs/Week			Marks for various Exams			
				L	T	P	Continuous Assessment	Mid-semester Examination	End-semester Examination	Total
Core I	PFP2006	Research, Thesis and Open defense	30			40			450	450

****Sem III and Sem IV Evaluation will conducted be at end of IV semester.**

Semester I

Course Code: PFT2101	Course Title: Chemistry of Ingredients in Fragrance and flavors	Credits = 3		
		L	T	P
Semester: I	Total contact hours: 45	2	1	0
List of Prerequisite Courses				
a) HSC chemistry, B.Tech in any branches of Chemical Technology				
List of Courses where this course will be prerequisite				
a) Formulation and creation of flavours and fragrances				
b) Applications of cosmetics, aroma chemicals in various fields				
Description of relevance of this course in the M. Tech programme				
a) The course will enable the students to understand basic chemical ingredients used in the Fragrance and Flavour industry for making fragrance and flavour.				
Sr.No.	Course Contents (Topics and subtopics)	Reqd. hours		
1	Perfumery chemicals, classification of perfumes and flavours according to characteristic group present,	02+01		
2	Resources of raw materials used in perfumery and flavor chemicals, Chemistry of perfumes and flavours raw materials, Unit processes involved, different reagents used, Selection of process for industry	02+01		
3	Important chemical reactions involved in converting raw materials to perfumery and flavour chemicals,	02+01		
4	Synthetic methods for various functional groups Alcohols for Fragrance and flavour applications, their Classification and synthesis	03+01		
5	Aldehydes Fragrance and flavour applications, their Classification and synthesis	04+02		
6	Esters, Ketones, ethers used in Fragrance and flavour industry and their synthesis Lactones, Amines, Phenols, Nitro compounds used in Fragrance and flavour applications and their synthesis	03+01		
7	Heterocyclic, Macrocyclic and alicyclic compounds in Fragrance and flavour applications and their synthesis	02+01		
8	Exposure to various chemicals used in flavour creation and blending, smell / odour and taste contribution from these in flavours.	06+03		
9	Biogenesis of flavours in fruits and vegetables, reaction flavours, off flavours. Flavour enhancers / chemicals.	03+01		
10	Isolation and re-enforcement of top notes in flavour formulation/foods.	02+01		
11	Analytical tools in QC/QA. Overview of Sensory evaluation and the role in selecting aroma chemicals Flavour creation, synergetic effect in blending.	02+01		

List of Text Books/ Reference Books	
1	Aroma Science – S. P. Gimelli
2	Fragrance Chemistry – E. T. Theimer
3	Perfumery and Flavoring synthetics – Bedaukian
4	Unit Processes in Organic Synthesis-, P.H. Groggins, TaTa-McGraw Hill publication
5	Chemistry and Technology of Flavours and Fragrances-David Rowe, Wiley Publications
Course Outcomes (students will be able to....)	
1	Appreciate the significance of chemistry in Fragrance and Flavour industry
2	Unit process in Fragrance and Flavour industries
3	Synthesis of various fragrance and flavour ingredients

Course Code: PFT2102	Course Title: Technology of Fragrance and flavors	Credits = 3		
		L	T	P
Semester: I	Total contact hours: 45	2	1	0
List of Prerequisite Courses				
a) HSC chemistry, B.Tech in any branches of Chemical Technology				
List of Courses where this course will be prerequisite				
a) Formulation of fragrances and flavours				
b) Applications of technology and basics in the field of FMCG products				
Description of relevance of this course in the M. Tech programme				
a) The course will enable the students to understand basic Technology involved in Fragrance and Flavour industry for making fragrance and flavour.				
Sr.No.	Course Contents (Topics and subtopics)	Reqd. hours		
1	History of perfumes, Perfumery raw materials, classification of odor, odor type and odorants	04+ 01		
2	Jean Carle’s perfumery pyramid, evaluation techniques of perfumery ingredients	06+03		
3	Study on application of fragrance and perfume into different FMCG products	04+01		
4	Systematic approach to understanding flavour formation during food processing, food matrix, interaction of added flavours.	02+ 01		
5	Understanding of terms like, Flavour and Flavouring agents. Attributes of flavour, taste, odour, odour stimulation, basic tastes and the human olfactory system.	03+01		
6	Flavour enhancers, modifiers, precursors, suppressors, major chemicals and raw materials, solvents.	03+02		

7	Forms of flavour and the manufacturing processes involved all types of flavours. Aroma recovery during processing.	02+01
8	Legal aspects (natural flavours and natural flavouring substances, nature identical flavouring substances, artificial flavouring substances), and the FSSA act.	04+02
9	Selection and application of flavours in foods and beverages	02+ 02
List of Text Books/ Reference Books		
1	Perfume and flavor materials of natural origin - Arctander	
2	Common fragrance and flavor materials – Bauer	
3	Chemistry and technology of flavor fragrances – D. J. Rowe	
Course Outcomes (students will be able to....)		
1	Manufacturing processes of perfumes and flavours	
2	Application of fragrances/flavours into different FMCG products	
3	Quality control in manufacturing process, legal aspects, classification of odour and odorants.	

Course Code: PFT2103	Course Title: Creation of fragrance and flavors	Credits = 3		
		L	T	P
Semester: I	Total contact hours: 45	2	1	0
List of Prerequisite Courses				
a) HSC chemistry, B.Tech in any branches of Chemical Technology				
List of Courses where this course will be prerequisite				
a) Perfumery technology				
b) Application based study				
Description of relevance of this course in the M. Tech programme				
a) The course will enable the students to understand basic formulation and sensory analysis and enhance the creation aspect.				
Sr.No.	Course Contents (Topics and subtopics)	Reqd. hours		
1	Introduction to fragrances, types of fragrance	04+ 01		
2	ABCs of perfumery, odour aspects of perfumes, fragrance pyramid, fragrance families	06+01		
3	Current trends in fragrances, sensory analysis of different products	05+03		
4	Study of legendry perfumes	03+ 02		
5	Introduction to flavors, types of flavors, flavor raw materials,	03+01		
6	Stability of flavor in food, sensory evaluation of flavours in foods	03+02		
7	Various flavor formulation	06+05		
List of Text Books/ Reference Books				

- 1 Perfumes art, science and technology – Muller
- 2 Fenaroli's handbook of flavor ingredients – G. A. Burdock

Course Outcomes (students will be able to....)

- 1 Introduction to fragrances and flavour industry, their types, raw materials, odour aspects, etc.
- 2 Fragrance pyramid, fragrance and flavour families, sensory analysis of different products.
- 3 Formulation methods, how different factors affects the formulation process in F and F industry like current trends, raw material cost, consumer demands, etc.

Course Code: PFT 2104	Course Title: Cosmetics Chemistry and Technology	Credits = 3		
Elective I		L	T	P
Semester: I	Total contact hours: 45	2	1	0
List of Prerequisite Courses				
a) HSC chemistry, B.Tech in any branches of Chemical Technology				
List of Courses where this course will be prerequisite				
a) Applications in FMCG based products				
b) Cosmetic formulations				
Description of relevance of this course in the M. Tech programme				
a) The course will enable the students to understand interaction of fragrances with cosmetic bases involved in Fragrance and Flavour industry.				
Sr.No.	Course Contents (Topics and subtopics)	Reqd. hours		
1	Soaps cleansing preparation for skin, hair and teeth	04+02		
2	Physiology of skin, hair and tooth	02+01		
3	Soaps cleansing preparation for teeth	02+01		
4	Basic cosmetic skin care products - emulsion, cream and lotions	02+02		
5	Powders, emulsifier, thickeners and gums	02+01		
6	Cosmetic cleansing preparations	03+02		
7	Specialty products - sun protection, skin lightening etc.,	04+01		
8	Raw materials in cosmetics: water, oils , fats and waxes, and other raw materials	04+02		
9	Herbal cosmetics, cosmaceuticals and ISI guidelines ,	03+01		
10	Manufacturing processes of cosmetics	04+02		
List of Text Books/ Reference Books				
1	Perfume and flavor materials of natural origin - arctander			
2	Fragrance Chemistry – E. T. Theimer			
3	Natural ingredients in cosmetics II – P. Fridd			

Course Outcomes (students will be able to....)

- 1 Gets acknowledged with the functioning of cosmetic industry.
- 2 Manufacturing of different cosmetic products, interaction of fragrance material with the cosmetic base
- 3 Market trends in cosmetics

Course Code: PFT 2005 Elective II	Course Title: Analytical chemistry and quality control techniques	Credits = 3		
		L	T	P
Semester: I	Total contact hours: 45	2	1	0
List of Prerequisite Courses				
a) HSC chemistry, B.Tech in any branches of Chemical Technology				
List of Courses where this course will be prerequisite				
a) Synthesis of ingredients for perfumes and flavours				
b) Applications in f & f products				
Description of relevance of this course in the M. Tech programme				
a) The course will enable the students to understand analytical aspect involved in Fragrance and Flavour industry.				
Sr.No.	Course Contents (Topics and subtopics)	Reqd. hours		
1	Spectroscopic techniques: NMR, IR, Mass, Spectrometry. Separation techniques: HPLC, GC, LC, etc. Electrophoresis, CO ₂ Supercritical extraction.	12+05		
2	Analysis of Food Volatiles Using Headspace-Gas Chromatographic Techniques. The Analysis of Food Volatiles Using Direct Thermal Desorption. Solid-Phase Microextraction for the Analysis of Aromas and Flavors. The Advantages of GC-TOFMS for Flavor and Fragrance Analysis Modern Methods for Isolating and Quantifying Volatile Flavor and Fragrance Compounds	04+02		
3	SPME Comparison Studies and What They Reveal Analysis of Volatile Compounds in the Headspace of Rice Using SPME/GC/MS Headspace Techniques for the Reconstitution of Flower Scents and Identification of New Aroma Chemicals SPME Applications in Consumer Products Gas Chromatography.	06+03		
4	Olfactometry in Food Aroma Analysis Quantitative Use of Gas Chromatography. Olfactometry: The GC-"SNIF" Method Combining Mass Spectrometry and Multivariate Analysis to Make a Reliable and Versatile Electronic Nose Character	08 +05		

Impact Compounds: Flavors and Off-Flavors in Foods

List of Text Books/ Reference Books

- 1 Cosmetic raw material analysis and quality – Hilda Butler
Chemistry and Technology of Flavours and Fragrances-David Rowe, Wiley
- 2 Publications

Course Outcomes (students will be able to....)

- 1 Studied various techniques used for the analysis of raw materials, essential oils and aroma chemicals.
- 2 Modern methods for isolating and quantifying volatile flavour and fragrance compounds.

Course Code: PEP 2001	Course Title: Olfaction and Sensory Education	Credits = 3		
		L	T	P
Semester: I	Total contact hours: 45	1	0	2
List of Prerequisite Courses				
a) HSC chemistry, B.Tech in any branches of Chemical Technology				
List of Courses where this course will be prerequisite				
a) In formulations				
b) Applications of fine fragrances and flavors				
Description of relevance of this course in the M. Tech programme				
a) The course will enable the students to develop olfactive senses and memory for making fragrance and flavour.				
Sr.No.	Course Contents (Topics and subtopics)	Reqd. hours		
1	Olfaction: Memorisation of different raw materials used in perfumery, perfume language, Memorisation of perfumes, production, extraction processes Quality control of raw materials.	15 (Practical)+05(Theory discussion)		
2	Sensory education: Common characteristics of sensory systems, Vision, olfaction and tactile sensory evaluation, Organoleptic control Organoleptic properties of cosmetic products, aspect, colour, smell, touch	15 (Practical) +10 (Theory discussion)		
List of Text Books/ Reference Books				

- 1 Perfume and flavor materials of natural origin - arctander
- 2 Fragrance Chemistry – E. T. Theimer
- 3 Common fragrance and flavor materials – Bauer

Course Outcomes (students will be able to....)

- 1 Appreciate the significance of Olfactive sense in Fragrance and Flavour industry
- 2 Characteristic distinction of odors *w.r.t* their functional groups
- 3 Learning the skill to differentiate between a natural and synthetic aroma chemicals

PFP 2002 Seminar and Critical Review

Course Outcomes:

1. Survey literature related to the given topic
2. Analyze the reported outcomes and classify the work under key categories
3. Write a technically correct report as per the suggested guidelines and present the seminar work

Syllabus:

The Seminar work is concerned with a detailed and critical review of an area of interest to Chemical Engineering. Typically, the report should contain and will be evaluated based on the following points:

- (a) Introduction: 2 pages maximum,
 - (b) Exhaustive review of literature (including figures): 10 – 12 pages: 50% Weightage
 - (c) Critical analysis of the literature and comments on the analysis Critical analysis should also contain quantitative comparison of observations, results, and conclusion amongst the various papers.
2. Two typed copies of the report on thesis size bond paper (297 mm x 210 mm) are to be submitted to Coordinator on **time to be decided by the coordinator**. The detailed timetable for the presentation would be communicated.
 3. The report should be prepared using the Times Roman font (size 12) using 1 1/2 spacing leaving 1-inch margin on all sides producing approximately 29 lines per page. The report should be typed on one side of the paper and need not be bound in a hard cover binding. Figures and tables should be shown as a part of the running text. Each figure should be drawn inside a rectangular box of 12 cm width and 10 cm height. ~~The figures must be sufficiently clear and hand drawn figures will be~~

4. Name of the student, title of the problem and year of examination must be indicated on the top cover. THE NAME OF THE SUPERVISOR (ONLY INITIALS) MUST APPEAR ON THE BOTTOM RIGHT CORNER OF THE TOP COVER.
5. The report must be precise. All important aspects of the topic should be considered and reported. **The total number of pages, including tables, figures, and references should not exceed 30.** Chapters or subsections need not be started on new pages, while getting the report typed.
6. Typographical errors in the report must be corrected by the student. The student will be discredited for any omission in the report. All the symbols used in the text should be arranged in an alphabetical order and given separately after conclusions.
7. The list of references should be arranged in alphabetical order of the names of authors. In the text, the reference should be cited with author's name and year. (author – date style) For example:
 - (i) The flow pattern in gas-liquid-solid fluidized bed has been reported in the published literature (Murooka et al., 1982).

OR

- (ii) Murooka et al. (1982) have measured flow patterns in gas-liquid-solid fluidized beds. The title of the article should also be included. The references must be given in the following standard format.
 - (a) Format for listing references of articles from periodicals: Murooka S., Uchida K. And Kato Y., Recirculation Turbulent Flow of Liquid in Gas-Liquid-Solid Fluidised Bed”, J. Chem. Engg. Japan, 15, 29-34 (1982).
 - (b) Format for listing references of Books:
Constant R.F., "Crystallization, Academic Press, New York, pp. 89-90, 1968.
 - (c) Format for listing Thesis:
Niranjan K., "Hydrodynamic and Mass Transfer Characteristics of Packed Columns", Ph.D. (Tech.) Thesis, University of Mumbai, 1983.
 - (d) Format for listing references of Patents in Chemical Abstracts:
Cananaush R.M., U.S. Patent 2,647,141, Cf. C.A. 48, 82636 (1954).
 - (e) Format for listing Handbooks, Tables, Symposia etc.:

Kumar R and Kuloor N.R., "Formation of Drops and Bubbles", in Advances in Chemical Engineering, Vol.8,

T.B.Drew et.al. (Eds.) New York, Academic Press, pp.256-364 (1970).

(f) Format for listing Private Communications and other categories:

Sharma, M.M., Private Communication (1984).

8. Consistency of units should be maintained in the written report. SI systems should be used. [For SI system – Ref: Ind. Chem. Engr., 24, 32, 3 (1983)]. Units used in the literature (if not SI) should be correctly converted.
9. The time allotted for the oral presentation of seminar is 20 minutes: additional 10 minutes are provided for questions and answers.
10. INCOMPLETE AND CARELESSLY WRITTEN REPORT IS LIABLE TO BE REJECTED.
11. The last date for submission will NOT be extended on any grounds whatsoever.
12. There must not be any acknowledgment about the guidance by the faculty in the Seminar.
13. The Seminar will be evaluated on the basis of (i) rational approach to the problem, ii) correctness and completeness of the written text and iii) performance in the oral presentation.
14. Word-to-word copying from the published article is not permitted.

The submitted report will be evaluated by the research guide and an external examiner from the Department/Industry based on the presentation made by the candidate. A suitable combination of the marks for report and presentation will be considered for the final evaluation.

PFP 2003 – Research Project I

Course Outcomes:

1. Analyze existing literature for research topic and develop detailed plan of experiments/simulations
2. Systematically perform experiments/modeling activity to accomplish the set objectives
3. Critically analyse the results and write a technically correct report as per the suggested guidelines and present the work

Details:

The Research project I is concerned with detailed literature review of the assigned research area in consultation with the guide, developing an experimental/simulation protocol and initiate the actual research work. Based on the outcomes of the candidate is expected to submit a report as per similar guidelines provided for **PFP 2002** above which will be evaluated by the research guide and an external examiner from the Department/Industry based on the presentation made by the candidate. A suitable combination of the marks for report and presentation will be considered for the final evaluation.

Semester II

Course Code: PFT 2007	Course Title: Natural Products for Fragrance and Flavours	Credits = 3		
		L	T	P
Semester: II	Total contact hours: 45	2	1	0
List of Prerequisite Courses				
a) HSC chemistry, B.Tech in any branches of Chemical Technology				
List of Courses where this course will be prerequisite				
a) Separation and extraction technique				
b) Biosynthesis of aroma chemicals				
Description of relevance of this course in the M. Tech programme				
a) The course will enable the students to understand the biosynthetic pathway and physiology of raw material involved in Fragrance and Flavour industry for making fragrance and flavour.				
Sr.No.	Course Contents (Topics and subtopics)	Reqd. hours		
1	Natural Source of perfumery and flavoring ingredients: Plants, animals, cultivation and application	05 + 02		
2	Chemistry of Natural products: Classification of ingredients, identification, biogenesis of terpenoids, phenyl propenoids, etc	05 + 03		
3	Quality Control: Mint, Sandal wood, Citrous compounds and Muskone and related compounds, spices, aromatic herbs	05 + 03		
4	Extraction and isolation: Extraction techniques for the separation of volatile oils from natural source including supercritical fluid extraction methods of isolation of important ingredients.	15 + 07		
List of Text Books/ Reference Books				
1 Perfume and flavor materials of natural origin - arctander				
2 Perfumery and flavoring materials - Bedaukian				
3 Common fragrance and flavor materials – Bauer				
Course Outcomes (students will be able to....)				
1 Natural source of perfumery and flavoring ingredients along with the knowledge of their chemistry and biosynthesis.				
2 Physiology of plant materials, extraction and isolation techniques				

Course Code: PFT 2008	Course Title: Marketing management and customer behavior	Credits = 3		
		L	T	P
Semester: II	Total contact hours: 45	2	1	0
List of Prerequisite Courses a) HSC chemistry, B.Tech in any branches of Chemical Technology				
List of Courses where this course will be prerequisite a) Formulation and application b) New Product Development				
Description of relevance of this course in the M. Tech programme a) The course will enable the students to understand consumer insight, current marketing trends and marketing mix involved in Fragrance and Flavour industry.				
Sr.No.	Course Contents (Topics and subtopics)	Reqd. hours		
1	Evolution of marketing concept, sales, marketing, corporate and social responsibility.	04 + 01		
2	Understanding consumer behavior and Industrial buying decision process, trends, environmental factors /life styles	06 + 01		
3	Market research, Market potential , market share, Product development , product attributes, life cycle, product up-gradation, substitution, pricing, advertisement, distribution, marketing mix, market planning , dynamics in product positioning , branding ,competitive scenario.	08+ 08		
4	Marketing brief, product brief, and customer interaction in co-creating new blends,application evaluation of new blends, consumer insight, role of Key Account Manager	06+ 03		
5	Overview of new sales platforms, AI concept, digital marketing	06+ 02		
List of Text Books/ Reference Books 1 Marketing management – Kotler 2 Marketing research – Luck				
Course Outcomes (students will be able to....) 1 Current marketing trends and strategies. 2 Consumer Insight and its effect on the development of new product and the success of the products in market.				

Course Code: PFT 2108	Course Title: Application of Fragrance and flavors	Credits = 3		
		L	T	P
Semester: II	Total contact hours: 45	2	1	0
List of Prerequisite Courses				
a) HSC chemistry, B.Tech in any branches of Chemical Technology				
List of Courses where this course will be prerequisite				
a) Applications of flavours and perfumes				
b) Cosmetic formulations				
Description of relevance of this course in the M. Tech programme				
a) The course will enable the students to understand stability of fragrances and legal aspects involved in cosmetics				
Sr.No.	Course Contents (Topics and subtopics)	Reqd. hours		
1	Decorative cosmetics, Color science, Pigments and dyes	02+02		
2	Color cosmetic formulations beauty and salon treatment	04+01		
3	Aroma therapy	04+03		
4	Cosmetic product development sequence and logic techniques of product development, Stability testing of Cosmetics, Quality control of Cosmetic preparations, Market trends in cosmetics and toiletries	08+03		
5	Efficacy testing and clinical trials	02+01		
6	Sensorial evaluation and psychophysiology	04+03		
7	Packaging materials in cosmetics	04+01		
8	Cosmetics Rules and Regulations	02+01		
List of Text Books/ Reference Books				
1 Cosmetics science and technology – E. Sagarin				
2 Cosmetology: Theory and practice – K. Schrader				
3 The science of cosmetics – J. V. Simmons				
Course Outcomes (students will be able to....)				
1 Marketing trends in cosmetic industry.				
2 Stability of fragrances in cosmetic products.				
3 Aromatherapy and its benefits				

Course Code: PFT 2009	Course Title: Technology and science of essential oils	Credits = 3		
Elective		L	T	P
Semester: II	Total contact hours: 45	2	1	0
List of Prerequisite Courses a) HSC chemistry, B.Tech in any branches of Chemical Technology List of Courses where this course will be prerequisite a) Extraction b) Analysis of essential oils Description of relevance of this course in the M. Tech programme a) The course will enable the students to understand science of essential oils.				
Sr.No.	Course Contents (Topics and subtopics)	Reqd. hours		
1	Introduction to essential oil, production of essential oil	06+03		
2	Raw materials, processing, purification and isolation of essential oil reconstitution of essential oil	08+ 05		
3	Aroma chemicals (lemongrass oil, citronella oil, plama rosha oil, turpentine oil, mint oil, sandalwood oil etc.	08+02		
4	Analysis and quality control in industry.	08+05		
List of Text Books/ Reference Books 1 The essential oils vol. I to VI – Guenther 2 The chemistry of essential oils – D. G. Williams Course Outcomes (students will be able to....) 1 Basics and production of essential oils. 2 Extraction and application techniques of essential oils 3 Analysis and quality control in industry.				

Course Code: PFT 2012	Course Title: Synthetic perfume and flavor chemistry	Credits = 3		
Elective		L	T	P
Semester: II	Total contact hours: 45	2	1	0
List of Prerequisite Courses				
a) HSC chemistry, B.Tech in any branches of Chemical Technology				
List of Courses where this course will be prerequisite				
a) Manufacturing of aroma chemicals				
b) Separation and purification of aroma chemicals				
Description of relevance of this course in the M. Tech programme				
a) The course will enable the students to understand synthetic derivatives of natural aroma chemicals involved in Fragrance and Flavour industry for making fragrance and flavour.				
Sr.No.	Course Contents (Topics and subtopics)	Reqd. hours		
1	Synthesis of different perfumes and flavor compounds	12+ 05		
2	Choice of different routes of synthesis and raw materials with reference to cost and quality	08+ 05		
3	purification of aroma chemicals from petrochemicals, aroma chemicals based on natural essential oils (sandal aroma chemicals, musk compounds, amber woody chemicals etc)	10 + 05		
List of Text Books/ Reference Books				
1 Chemistry and technology of flavor fragrances – D. J. Rowe				
Course Outcomes (students will be able to....)				
1 Synthetic pathways of various aroma chemicals like menthol, sandalore, bacdenal, citral, macrocyclic musk, amber woody chemicals, etc.				
2 Separation, purification and isolation techniques of aroma chemicals.				
3 Conversion of low end-products to high end-products.				

Course Code: PFT 2013	Course Title: Separation process in perfumes and flavor industry	Credits = 3		
		L	T	P
Semester: II	Total contact hours: 45	2	1	0
List of Prerequisite Courses				
a) HSC chemistry, B.Tech in any branches of Chemical Technology				
List of Courses where this course will be prerequisite				
a) Separation, purification and isolation				
b) Basic techniques				
Description of relevance of this course in the M. Tech programme				
a) The course will enable the students to understand Separation purification and isolation in fragrance and flavour industry				
Sr.No.	Course Contents (Topics and subtopics)	Reqd. hours		
1	Various techniques used for isolation and purification of perfumes and flavor compounds	04+02		
2	Distillation	08+04		
3	Extraction, supercritical fluid extraction,	06+02		
4	Evaporation,	04+01		
5	Crystallization,	04+01		
6	Adsorption	02+01		
7	Equipment and process design	08+04		
List of Text Books/ Reference Books				
1 Extraction with supercritical gases – Schneider G. M.				
2 Distillation: Principles and design procedures – Hengstebeck R. J.				
3 Unit operations – Brown G. G.				
4 Unit processes and principles of chemical engineering – Glesen J. C.				
5 Unit processes and principles of chemical engineering – Olesen J. C.				
6 Unit processes in organic chemical industries – Desikan P.				
7 Unit processes in organic syntheses – Groggins P. H.				
Course Outcomes (students will be able to....)				
1 Different methods used for separation, purification and isolation of perfumes and flavours like distillation, extraction, crystallization, etc.				
2 Applications in f and f industry				
3 The scope and advancement in the purification and isolation processes.				

Course Code: PFT 2112	Course Title: Production of aroma chemicals	Credits = 3		
		L	T	P
Semester: II	Total contact hours: 45	2	1	0
List of Prerequisite Courses				
a) HSC chemistry, B.Tech in any branches of Chemical Technology				
List of Courses where this course will be prerequisite				
Description of relevance of this course in the M. Tech programme				
a) The course will enable the students to understand basic Technology involved in Fragrance and Flavour industry for making fragrance and flavour.				
Sr.No.	Course Contents (Topics and subtopics)	Reqd. hours		
1	Functions of different parts of reaction unit	03+01		
2	Different reactions used in aroma chemical industry, aldol condensation, saponification, oximation, esterification, oxidation, etc	07+04		
3	Safety, repair maintenance of different parts of reaction units	02+01		
4	Hydrogenation	06+03		
5	Distillation of essential oils	06+02		
6	Solvent extraction of aromatic plants	06+03		
List of Text Books/ Reference Books				
1 Perfume and flavor materials of natural origin - arctander				
2 Fragrance Chemistry – E. T. Theimer				
3 Perfumery and Flavoring synthetics – Bedaukian				
4 Common fragrance and flavor materials – Bauer				
5 Chemistry and Technology of Flavours and Fragrances-David Rowe, Wiley Publications				
Course Outcomes (students will be able to....)				
1 Appreciate the significance of chemistry in Fragrance and Flavour industry				
2 Unit process in Fragrance and Flavour industries				
3 Synthesis of various fragrance and flavour ingredients				

Course Code: PFP 2002	Course Title: Blending and Creation for Fragrance and Flavors	Credits = 3		
		L	T	P
Semester: II	Total contact hours: 45	0	1	2
List of Prerequisite Courses				
a) HSC chemistry, B.Tech in any branches of Chemical Technology				
List of Courses where this course will be prerequisite				
a) Formulation				
b) Application in various products				
Description of relevance of this course in the M. Tech programme				
a) The course will enable the students to develop the creation aptitude.				
Sr.No.	Course Contents (Topics and subtopics)	Reqd. hours		
1	Option 1: Evaluate all available RMs in the blending room (in Dilution form) and make a note of descriptors. Compare individual descriptors with Standard descriptors from Reference book (Fenaroli) or the good scents company site. Note down possible end uses for that particular aroma chemical in respective flavor/fragrance. Monthly Smelling test to be conducted by course co-ordinator or Visiting faculty.	30		
2	Option 2: Bring any Market product which is Flavored/Fragrant. (e.g. Fruits, Vegetables, RTS drinks, Soaps, Shampoos, Detergent, etc.) Product Profiling: Evaluate it as a Team/individual and note down the flavor/fragrance characters. List down minimum 5-7 (max 10) Chemicals that matches your product profiling based on your evaluation of the RMs in Option-1 Verify the results with respective Visiting faculties	30		
3	Option 3: Application of Flavors in different categories like Beverage, Confectionery, Bakery,	30		

	<p>Pharma by collaborating with FET & Pharma departments.</p> <p>Evaluation of prototypes after 1-2 days of preparation of prototypes</p> <p>Conduct the shelf life study for prototypes</p> <p>After shelf life study, showcase prototypes to the course co-ordinator/visiting faculties with presentation (including Recipe, Dosage, Selection of Flavor, etc.)</p>	
4	<p>Option 4:</p> <p>Application of Fragrances in different categories like Fine Fragrance, Cosmetic Bases (Soap, Shampoo, Conditioner, Lotion, etc.) Home care product bases by collaborating with Oil & Surfactant technology department.</p> <p>Evaluation of prototypes after 1-2 days of preparation of prototypes</p> <p>Showcase prototypes to the course co-ordinator/visiting faculties with presentation (including Base formulation, Fragrance Dosage, Selection of Fragrance, etc.)</p>	30
<p>List of Text Books/ Reference Books</p> <ol style="list-style-type: none"> 1 Perfume and flavor materials of natural origin - arctander 2 Fragrance Chemistry – E. T. Theimer 3 Perfumery and Flavoring synthetics – Bedaukian 4 Common fragrance and flavor materials – Bauer 5 Chemistry and Technology of Flavours and Fragrances-David Rowe, Wiley Publications <p>Course Outcomes (students will be able to....)</p> <ol style="list-style-type: none"> 1 To understand the basic creation and blending of perfumes and flavors 2 Application of formulations in the products 3 Sensory testing and dosage understanding to prepare the stable formulation 		

PFP 2004 Research Project II

Course Outcome:

1. Systematically perform experiments/modeling activity to accomplish the set objectives
2. Critically analyse the results and present them in coherent manner in the form of graphs, tables etc.
3. Write a technically correct report as per the suggested guidelines and present the work

Details:

This would be concerned with the continuation of the research project executed in the first semester and the exact work plan will be decided in consultation with the research guide. At the end of the project, the candidate is expected to submit a report as per similar guidelines provided for **PFP 2002** above which will be evaluated by the research guide and an external examiner from the Department/Industry based on the presentation made by the candidate. A suitable combination of the marks for report and presentation will

Declaration

The head of the institution needs to make a declaration as per the format given -

- I undertake that, the institution is well aware about the provisions in the NBA's accreditation manual concerned for this application, rules, regulations, notifications and NBA expert visit guidelines inforce as on date and the institutes hall fully abide by them.
- It is submitted that information provided in this Self-Assessment Report is factually correct.
- I understand and agree that an appropriate disciplinary action against the Institute will be initiated by the NBA. In case, any false statement/information is observed during pre-visit, visit, post visit and subsequent to grant of accreditation.

Head of the Institute

Name: Prof. A. B. Pandit

Designation: Vice Chancellor

Signature:



Seal of the Institution:

Place: Mumbai

Date: 13/01/2022 10:00