VEER SURENDRA SAI UNIVERSITY OF TECHNOLOGY, BURLA

SELF ASSESSMENT REPORT(TIER - I) FOR Mechanical Engg.

Part A : Institutional Information

1   Name and Address of the Institution

VEER SURENDRA SAI UNIVERSITY OF TECHNOLOGY, BURLA,
PO. BURLA ENGINEERING COLLEGE DIST. SAMBALPUR (ODISHA)

2   Name and Address of Affiliating University

VEER SURENDRA SAI UNIVERSITY OF TECHNOLOGY

3   Year of establishment of the Institution:

2009

4   Type of the Institution:

○ Institute of National Infortance	○ Autonomous
◉ University	○ Any other(please specify)
○ Deemed University	

5   Ownership Status:

○ Central Government	☐ Trust
◉ State Government	☐ Society
○ Government Aided	☐ Section 25 Company
○ Self financing	☐ Any Other(Please Specify)

6   Other Academic Institutions of the Trust/Society/Company etc., if any

Name of Institutions	Year of Establishment	Programs of Study	Location

7   Details of all the programs being offered by the Institution under consideration:

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
M Tech in Mechanical Engineering (Production Engineering)	PG	1972	1972	18	No	18	Granted provisional accreditation for two years for the period(specify period)	2018	2020	No	2
M Tech in Mechanical Engineering (Machine Design and Analysis)	PG	1972	1972	18	No	18	Granted provisional accreditation for two years for the period(specify period)	2018	2020	No	2
M Tech in Mechanical Engineering (Heat Power Engineering)	PG	1972	1972	18	No	18	Eligible but not applied	01/07/2016	30/06/2022	No	2
B Tech in Mechanical Engineering	UG	1956	1956	30	Yes	120	Granted accreditation for 6 years for the period (specify period)	27/07/2006	30/06/2022	Yes	4

Sanctioned Intake for Last Five Years for the B Tech in Mechanical Engineering	
Academic Year	Sanctioned Intake
2023-24	120
2022-23	120
2021-22	120
2020-21	120
2019-20	120
2018-19	120

8 Programs to be considered for Accreditation vide this application:

S No	Level	Discipline	Program
1	Under Graduate	Engineering & Technology	Civil Engg.
2	Under Graduate	Engineering & Technology	Electrical Engg.
3	Under Graduate	Engineering & Technology	Mechanical Engg.
4	Under Graduate	Engineering & Technology	Production Engg.
5	Under Graduate	Engineering & Technology	Electronics & Telecommunications Engineering

9 Total number of employees

A. Regular* Employees (Faculty and Staff):

Items	2023-24		2022-23		2021-22	
	MIN	MAX	MIN	MAX	MIN	MAX
Faculty in Maths, Science & Humanities teaching in engineering program (Female)	6	6	6	6	6	6
Non-teaching staff (Male)	110	117	117	129	129	139
Non-teaching staff (Female)	11	11	11	11	11	11
Faculty in Engineering (Male)	119	122	122	124	124	125
Faculty in Engineering (Female)	56	56	56	56	56	56
Faculty in Maths, Science & Humanities teaching in engineering program (Male)	31	32	32	32	32	33

B. Contractual* Employees (Faculty and Staff):

Items	2023-24		2022-23		2021-22	
	MIN	MAX	MIN	MAX	MIN	MAX
Faculty in Engineering (Male)	12	12	11	11	10	10
Faculty in Engineering (Female)	7	7	6	7	5	5
Faculty in Maths, Science & Humanities teaching in engineering Programs (Male)	10	10	11	11	9	9
Faculty in Maths, Science & Humanities teaching in engineering Programs (Female)	12	12	13	14	10	12
Non-teaching staff (Male)	60	76	76	91	91	114
Non-teaching staff (Female)	06	08	08	08	08	11

10   Total number of Engineering students:

Engineering and Technology- UG	☑ Shift1	☐ Shift2
Engineering and Technology- PG	☑ Shift1	☐ Shift2
Engineering and Technology- Polytechnic	☐ Shift1	☐ Shift2
MBA	☐ Shift1	☐ Shift2
MCA	☑ Shift1	☐ Shift2

Engineering and Technology- UG Shift-1

Course Name	2023-24	2022-23	2021-22
Total no. of Boys	2859	2790	2671
Total no. of Girls	1132	1025	962
Total	**3991**	**3815**	**3633**

Engineering and Technology- PG Shift-1

Course Name	2023-24	2022-23	2021-22
Total no. of Boys	149	197	240
Total no. of Girls	117	118	146
Total	**266**	**315**	**386**

Engineering and Technology- MCA Shift-1

Course Name	2023-24	2022-23	2021-22
Total no. of Boys	57	49	43
Total no. of Girls	21	20	17
Total	**78**	**69**	**60**

11   Vision of the Institution:

To emerge as an internationally acclaimed Technical University to impart futuristic technical education and creation of vibrant research enterprise to create quality engineers and researchers, truly world class leader and unleashes technological innovations to serve the global society and improve the quality of life.

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12   Mission of the Institution:

The Veer Surendra Sai University of Technology, Odisha, Burla strives to create values and ethics in its products by inculcating depth and intensity in its education standards and need based research through

§ Participative learning in a cross-cultural environment that promotes the learning beyond the class room.

§ Collaborative partnership with industries and academia within and outside the country in learning and research.

§ Encouraging innovative research and consultancy through the active participation and involvement of all faculty members.

§ Facilitating technology transfer, innovation and economic development to flow as natural results of research where ever appropriate.

§ Expanding curricula to cater broader perspectives.

Creation of service opportunities for upliftment of the society at large.

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

Head of the Institution	
Name	Prof. Banshidhar Majhi
Designation	Vice-Chancellor
Mobile No.	8056201404
Email ID	vc@vssut.ac.in

☑NBA Coordinator, If Designated

Name	Dr. Sasmita Behera
Designation	Assistant Professor
Mobile No.	9437367106
Email ID	sbehera_eee@vssut.ac.in

PART B: Criteria Summary

Critera No.	Criteria	Total Marks	Institute Marks
1	VISION, MISSION AND PROGRAM EDUCATIONAL OBJECTIVES	50	50.00
2	PROGRAM CURRICULUM AND TEACHING - LEARNING PROCESSES	100	100.00
3	COURSE OUTCOMES AND PROGRAM OUTCOMES	175	175.00
4	STUDENTS' PERFORMANCE	100	87.87
5	FACULTY INFORMATION AND CONTRIBUTIONS	200	161.84
6	FACILITIES AND TECHNICAL SUPPORT	80	80.00
7	CONTINUOUS IMPROVEMENT	75	70.00
8	FIRST YEAR ACADEMICS	50	47.23
9	STUDENT SUPPORT SYSTEMS	50	50.00
10	GOVERNANCE, INSTITUTIONAL SUPPORT AND FINANCIAL RESOURCES	120	120.00
	Total	**1000**	**942**

Part B : Criteria Summary

1 VISION, MISSION AND PROGRAM EDUCATIONAL OBJECTIVES (50)

1.1 State the Vision and Mission of the Department and Institute (5)

Vision of the institute	To emerge as an internationally acclaimed Technical University to impart futuristic technical education and creation of vibrant research enterprise to create quality engineers and researchers, truly world class leader and unleashes technological innovations to serve the global society and improve the quality of life.
Mission of the institute	The Veer Surendra Sai University of Technology, Odisha, Burla strives to create values and ethics in its products by inculcating depth and intensity in its education standards and need based research through § Participative learning in a cross-cultural environment that promotes the learning beyond the class room. § Collaborative partnership with industries and academia within and outside the country in learning and research. § Encouraging innovative research and consultancy through the active participation and involvement of all faculty members. § Facilitating technology transfer, innovation and economic development to flow as natural results of research where ever appropriate. § Expanding curricula to cater broader perspectives. Creation of service opportunities for upliftment of the society at large.
Vision of the Department	To be recognized as a center of excellence in education and research in the field of Mechanical Engineering by producing innovative, creative and ethical Mechanical Engineering professionals for socio-economic upliftment of society in order to meet the global challenges.
Mission of the Department	See table below

Mission No.	Mission Statements
M1	Maintaining state of the art research facilities to provide conducive environment to create, analyze, apply and disseminate knowledge.
M2	Fortifying collaboration with world class R&D organizations, educational institutions, industry and alumni for excellence in teaching, research and consultancy practices to fulfil 'Make In India' policy of the Government
M3	Providing the students with academic environment of excellence, leadership, ethical guidelines and lifelong learning needed for a long productive career

1.2 State the Program Educational Objectives (PEOs) (5)

PEO No.	Program Educational Objectives Statements
PEO1	To demonstrate successful professional careers with strong fundamental knowledge in Science, Mathematics, English and Engineering Sciences so as to enable them to analyze the Mechanical Engineering related problems.
PEO2	To acquire competency in solving real-life problems and to design/develop sustainable and cost effective products according to the prevailing socio-economic context.
PEO3	To acquire technical knowledge in specialized areas of Mechanical Engineering such as Materials, Design, Manufacturing and Thermal Engineering with a focus on research and higher studies.
PEO4	To improve self-reliant capabilities, soft skills, leadership qualities in order to excel the entrepreneurial skills to serve the nation and the society responsibly and ethically.
PEO5	To provide opportunity to work and communicate effectively in a team and to engage in the process of life-long learning.

1.3 Indicate where the Vision, Mission and PEOs are published and disseminated among stakeholders (15)

1.3 A Adequacy in respect of publication & dissemination

The various stake holders of this program include:-

Internal contributors	External contributors
Students	Guardian
Faculty and technical staff	Employers
University administration	Alumni
BOM of University	Government

The character of various stake holders in the smooth running of the program may be

Students: Current and potential students are keen to know if the program effectively equips them for their future career opportunities.

Faculty and technical staff: The faculty and technical staff are consistently engaged in the processes of knowledge transfer, design, and assessment within the program.

University administration: Tasked with implementing the strategies formulated by the Board of Management (BOM), it is crucial to offer the requisite financial and operational support to ensure the programs success.

Board of Management (BOM): The Board of Management (BOM) steers the strategic course of the institution by approving, monitoring, and reviewing both strategic (i.e., corporate) and operational plans. Additionally, it guarantees the presence of an efficient internal control framework, essential for the smooth operation of various programs.

Guardian: They are keen on ensuring their wards receive a superior education and enhanced employment prospects.

***Employers* : (**government, industry and universities): The satisfaction of employers with the education our students receive serves as a metric for the programs success. This satisfaction leads to job opportunities for our students.

Alumni: This group serves as an indicator of the programs overall effectiveness, and their success in professional careers acts as a key measure.

The Departments vision, mission, and PEOs (Program Educational Objectives) are thoroughly published and shared among the internal and external contributors as previously mentioned. The detailed process of disseminating and raising awareness about the vision, mission, and PEOs is elaborated in sections B & C.

1.3 B. Process of dissemination among stakeholders

The institutes vision and mission are included in the information brochure and Notice boards. Additionally, the Vision, Mission, and PEOs (Program Educational Objectives) are featured on the departments section of the University website (www.vssut.ac.in), accessible to both internal contributors, such as students and faculty, and external contributors like parents, alumni, and recruiters. Furthermore, the Vision, Mission, and PEOs are displayed on permanent boards in various departmental areas, including the Head of Departments office, faculty rooms, laboratories, and other key locations.

Table: 1.3 B. Publishing and disseminating of Vision, Mission and PEOs among stakeholders.

Means of Publishing and disseminating	Internal Contributor	Internal Contributor
College brochure	Yes	Yes
Departmental page of the University website (www.vssut.ac.in).	Yes	Yes
Flexi/Permanent boards in HOD room, Faculty rooms, labs and other locations.	Yes	Yes
Lectures to students	Yes	
Circular to parents		Yes
Induction program	Yes	
Circular to alumni, management and BOM.	Yes	Yes

1.3 C. Extent of awareness of Vision, Mission & PEOs among Stakeholders

PEOs, numerous awareness meetings are organized at the departmental level. During these sessions, the department head and senior faculty members provide detailed explanations about Outcome-Based Education (OBE), the teaching-learning system, and the crucial role of students and parents in this framework. Subsequently, the alignment and relevance of the Universitys vision and mission with the departments vision, mission, and PEOs are clearly outlined.

Parents are also informed about the departments vision, mission, and PEOs during meetings, which are typically held during the visit of the parents.

Alumni of the Mechanical Engineering department are updated on the departments vision, mission, and PEOs through alumni programs and meetings.

Employers and recruiters are informed via emails sent by the departments Training and Placement (T&P) coordinator.

1.4 State the process for defining the Vision and Mission of the Department, and PEOs of the program (15)

To begin with a department meeting was held and where discussions were undertaken for future strategies including

·The realignment of courses to meet current industry demands

·The necessity for accreditations and future strategies.

Following the discussion, the departments Vision, Mission, and Program Educational Objectives (PEOs) were established based on the inputs received during the session. To oversee this comprehensive process, a Department Academic Committee was formed with the authorization of the academic council and with the due approval from honourable Vice Chancellor of the University. The committee was led by the Head of the Department, who served as the Ex-officio Chairman.

1.4 A. The Framework for Deriving Vision and Mission of the Department

In coherence with institute's Vision & Mission, the vision and mission statements of the department were prepared by involving the stakeholders. Following process as depicted in Fig.1.4.1 were adopted in developing departmental Vision & Mission statements:

·The Head of the Department in a department meeting informed that Vision and Mission had to be re-drafted by Department Academic Committee (DAC) and for that purpose feedback from various stakeholders need to be taken and SWOT analysis done to arriveat the Vision and Mission statements for the department.

·SWOT analysis was conducted by considering internal stakeholders (Faculty and students) as well as the feedback received from Industry, Employers, Academic Experts,Guardian and Alumni of the University.

·All the information's were collected, summarized, and the Department Academic Committee (DAC) listed following most critical components for developing vision andmission of the department:-

·The Departmental Academic Committee (DAC) deliberated multiple times and finalized the draft Vision Mission of the department of Mechanical Engineering.

·Finally, after due consideration, Vision and Mission for the department were sent for the ratification by independent Academic Experts.

·After getting the feedback of the experts on the drafted Vision and Mission, the final Vision and Mission were sent to Academic Committee (AC) for Approval.

·The Institute Academic Committee informed the BOM about the ME Departmental Vision and Mission and disseminated it.

Quality Knowledge	Innovation and research	
Professional carrier	Lifelong learning	
Higher education	Social and ethical Responsibilities	
Interaction	Networking	
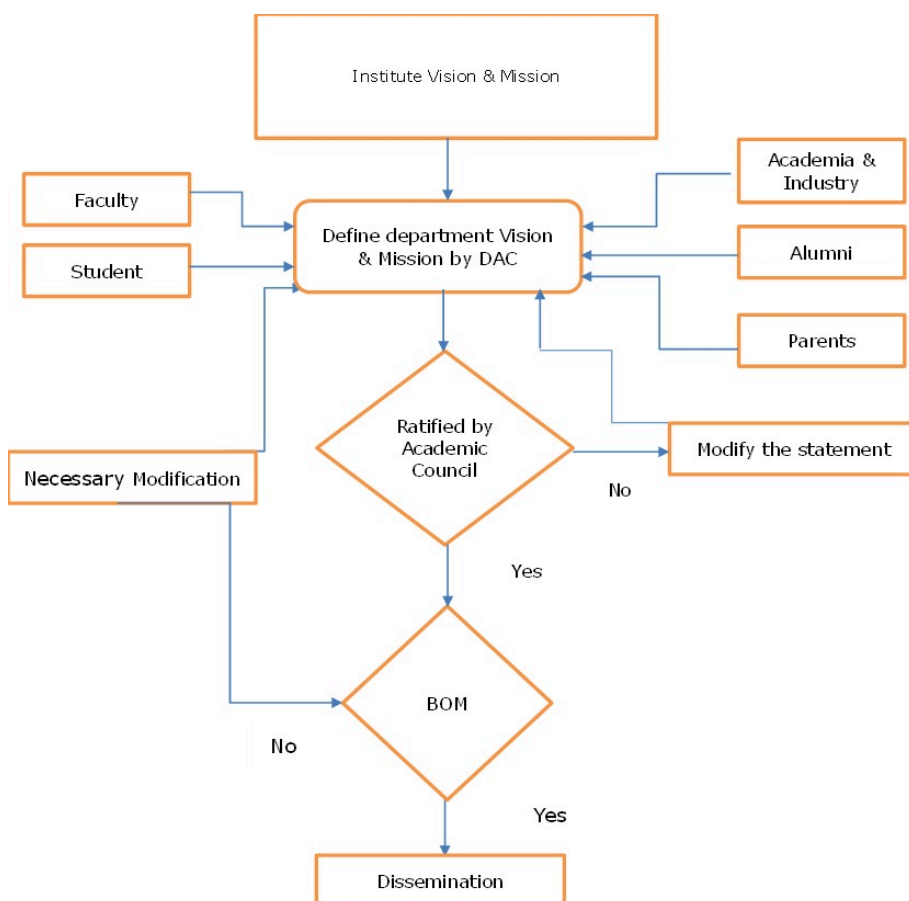
Fig.1.4.1:- Framework for Deriving Mission and Vision of the Department

1.4 B. The Framework for Deriving PEOs of the program

Program Educational Objectives (PEOs) serve as a comprehensive declaration of the goals pursued by the program. Primarily, these goals are designed to align with and support the departments mission. Moreover, they aim to prepare students for a rewarding and meaningful life within society. It is crucial that these objectives harmonize with both the departments mission and the needs of the industry as closely as possible. Additionally, feedback from alumni who have advanced into the industry or prestigious academic institutions plays a vital role in evaluating the sufficiency of these objectives. The process for defining PEOs, as illustrated in Figure 1.4.2, is outlined as follows:
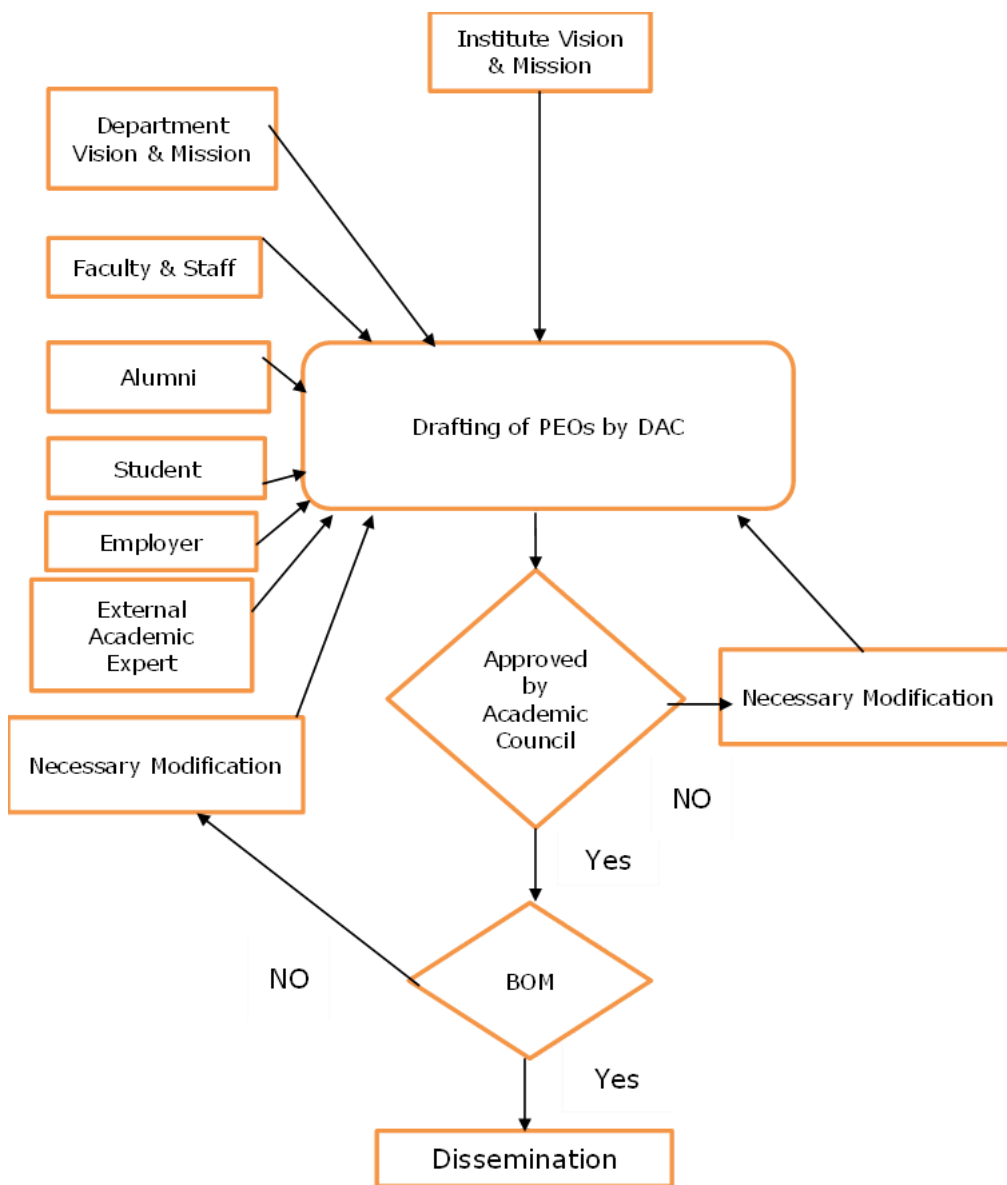
Fig.1.4.2 Framework for deriving PEOs of the program

·The feedback data related to the program were collected from all the stakeholders and submitted to the Department Academic Committee (DAC) for deliberations.

·The Department Academic Committee (DAC) listed following most critical components for developing PEOs of the program:-

Employment	Higher education
§ Private Sector Jobs	• M. Tech or Equivalent
§ Core Engineering Jobs	• MBA or equivalent
§ Software Related Jobs	• Entrepreneurship
§ Government Jobs	• Carrier Growth
§ With/without GATE Score card	• Lifelong learning
§Through UPSC/State Service Commission	• Social and ethical Responsibilities

·Utilizing the gathered information, the DAC formulated the Program Educational Objectives (PEOs).

·The formulated PEOs underwent thorough deliberation by the Department Academic Committee (DAC).

·Subsequently, the finalized PEOs for the program were established, transmitted to the Board of Management, and disseminated.

1.5 Establish consistency of PEOs with Mission of the Department (10)

1.5 A. Co-relation matrix between PEOs and Mission of the department.

Co-relation matrix between PEOs and Mission of the Department is given below in Table

Table: 1.5 Mapping of PEOs with Mission of the Department

(Generate a "Mission of the Department – PEOs matrix" with justification and rationale of the mapping)

PEO Statements		M1	M2	M3
	Keywords	Knowledge, Research,Analyze and apply (4)	Collaboration,teaching,enterprenurship and consultancy (4)	Leadership,ethics, life long learning
PEO1:	Knowledge, analyse and Engineering applcations (3)	**3**	**2**	**2**
PEO2:	Competency,Problem solving, Design and development and socio-economic (4)	**2**	**3**	**2**
PEO3:	Specialize skills,research and higher studies (3)	**2**	**3**	**2**
PEO4:	Self reliant, soft skills, leadership and social reposibility (4)	**2**	**3**	**3**
PEO5:	Communication skills, team work and life long learning(3)	**2**	**3**	**3**

Table B.1.5

PEO Statements	M1	M2	M3
To demonstrate successful professional careers with strong fundamental knowledge in Science, Mathematics, English and Engineering Sciences so as to enable them to analyze the Mechanical Engineering related problems.	3	2	2
To acquire competency in solving real-life problems and to design/develop sustainable and cost effective products according to the prevailing socio-economic context.	2	3	2
To acquire technical knowledge in specialized areas of Mechanical Engineering such as Materials, Design, Manufacturing and Thermal Engineering with a focus on research and higher studies.	2	3	2
To improve self-reliant capabilities, soft skills, leadership qualities in order to excel the entrepreneurial skills to serve the nation and the society responsibly and ethically.	2	3	3
To provide opportunity to work and communicate effectively in a team and to engage in the process of life-long learning.	2	3	3

2 PROGRAM CURRICULUM AND TEACHING - LEARNING PROCESSES (100)

2.1 Program Curriculum (30)

2.1.1 State the process for designing the program curriculum (10)   lr

2.1.1 State the process for designing the program curriculum (10)

Programme Outcomes (POs) of VSSUT Burla are as follows:

The graduates after successful completion of the course will acquire:

PO1	Ability to apply knowledge of mathematics, science and engineering to solve complex problems in engineering.
PO2	Ability to identify, formulate, and solve complex engineering problems using first principle of mathematics, basic science & engineering.
PO3	Ability to design, implement & evaluate engineering projects to meet societal and environmental needs.
PO4	Ability to design and conduct complex engineering experiments as well as to analyse and interpret the experimental data.
PO5	Ability to use the techniques, skills, and modern engineering tools necessary for relevant engineering practices.
PO6	Ability to assess impact of contemporary social issues on professional practice.
PO7	Ability to recognize the sustainability and environmental impact of the engineering solutions.
PO8	Ability to follow prescribed norms, responsibilities and ethics in engineering practices.
PO9	Ability to work effectively as an individual and in a team.
PO10	Ability to communicate effectively through oral, written and pictorial means with engineering community and the society at large.
PO11	Ability to understand and apply engineering and management principles in executing project.
PO12	Ability to recognize the need for and to engage in lifelong learning.

Programme Specific Outcomes (PSO) are as follows:

Graduates of the program will be able to:

PSO1	Achieve excellence in thermal engineering, machine design, manufacturing systems and industrial engineering by acquiring knowledge in mathematics and basic science.
PSO2	To implement the learned principles of mechanical engineering to analyze, interpret and provide solutions to the real-life problems by using state-of-art facilities.
PSO3	Take-up career in industries or to pursue higher studies in mechanical and interdisciplinary programs with high regard for ethical values, environmental and social issues.

An extensive multi-step process is used to design the program curriculum so as to ensure that the curriculum is continuously updated and is synchronized with the fast-paced changes as required in the industries. Our institute uses feedback systems and curriculum is updated continuously from the inputs received from the feedbacks from various sources. In the department, every section has two class representatives, one from boys side and other from girls side, who continuously informs about any problem faced by students. Feedback is taken from the students at the end of each semester in our department. There is a very strong Alumni Network that meets at various times in a year. Faculty members and students attend these meetings to obtain feedback regarding the latest industry trends and need for curriculum changes.

There is an external exam component in every course wherein the question papers are set by reputed Examiners from outside the Institute, mainly from NITs and IITs. This evaluation is completely transparent to the Department and is handled at the Institute level. The Examiner is requested to provide Question wise performance report in the form of POs and also, overall report of the performance of the students in the course. Feedback is obtained from the industry mentors who mentors our students in their compulsory trainings as per our syllabus. This is very useful as the students typically work on live projects in the industry and the industry has sufficient time to observe any points of concern. This feedback is, therefore, very helpful. There is a Industry-Institute cell in our institute where we have signed MOUs with various industries and institutes, which suggests inter alia measures for enhancing the quality of the education in the Institute.

The Department invites proposals from the faculty members for Curriculum changes and introduction of new courses every year. These are discussed in the Department meeting as a preparation for the Department Board of Studies (BOS) held twice in a year being notified by the office of the Dean, Academic Affairs before the commencement of a semester to finalize the list of question setters, examiners and other academic matters every year. The BOS also considers the feedback obtained from various sources for curriculum update. Every Department has a Board of Studies consists of the HOD, all the Professors and Associate Professors in the Department, few Assistant Professors of the Department and few external members from outside the Institute including both Academicians and Industry Experts. The HOD shall act as the Chairman of the relevant Board of Studies. The BOS ensures adequate standard in the framing of the syllabus, choice of text books and other academic matters.

The Board of Studies have the following powers and duties: —

i. Prepare syllabus for various courses keeping in view the objectives of the University and the national requirement for consideration with the approval of the Academic Council.
ii. Suggest methodologies for innovative teaching and evaluation techniques for consideration of the Academic Council.
iii. Suggest panel of names to the Academic Council for appointment of examiners and paper setters. The Vice-Chancellor shall have authority to appoint one or more paper setters in extraordinary situati examinations.
iv. Co-ordinate research, teaching, extension and other academic activities in the Department.
v. Board of Studies sou motu or on reference by the Vice-Chancellor may consider any matter and forward the recommendations to the ViceChancellor for such action as it may deem necessary.
vi. Discharge such other functions which are assigned to it by the Academic Council and the Board.

The proposals that are cleared by the Departmental BOS are discussed in the meeting of the Institute Academic Council every year. The Institute Academic Council consists of Vice-Chancellor of the Institute, all Deans, all HODs, Registrar, Controller Examinations, Prof. Training and placement, PIC Examination, and few ex-officio members. The proposals that are cleared by the Academic Council are implemented from the next session. The above process is followed every year for keeping the curriculum updated. However, periodically, there are major revisions that are carried out. Mechanical Engineering Society (MES) is constituted in our department which organizes various seminars and technical events per year in order to boost the technical knowledge among the students and faculty members. Experts from different institutions and industries including alumni are cordially invited to deliver the talks on the events organized by the MES society.

All the departments are expected to have a strong outcome-based approach in teaching-learning in the University. The audit team assesses the activities involved in developing learning outcomes, design and development activities in curriculum, teaching-learning process, student learning assessment process and student engagement programs. The audit team also assess the quality and quantity of research outcomes during the last three years. The Academic Audit Committee of the Institute that has a large number of external members including both academicians and industry personnel meets the students every year for their inputs and suggestions regarding the Curriculum contents and delivery. The report is sent to the Departments and discussed in a meeting with all the faculty members. The academic audit conduct quality checks on different activities undertaken in all departments/sections/Student activity Centers of the University to meet expected outcomes and it promotes adoption of best practices in teaching.

The flow chart for designing the program curriculum is as follows:
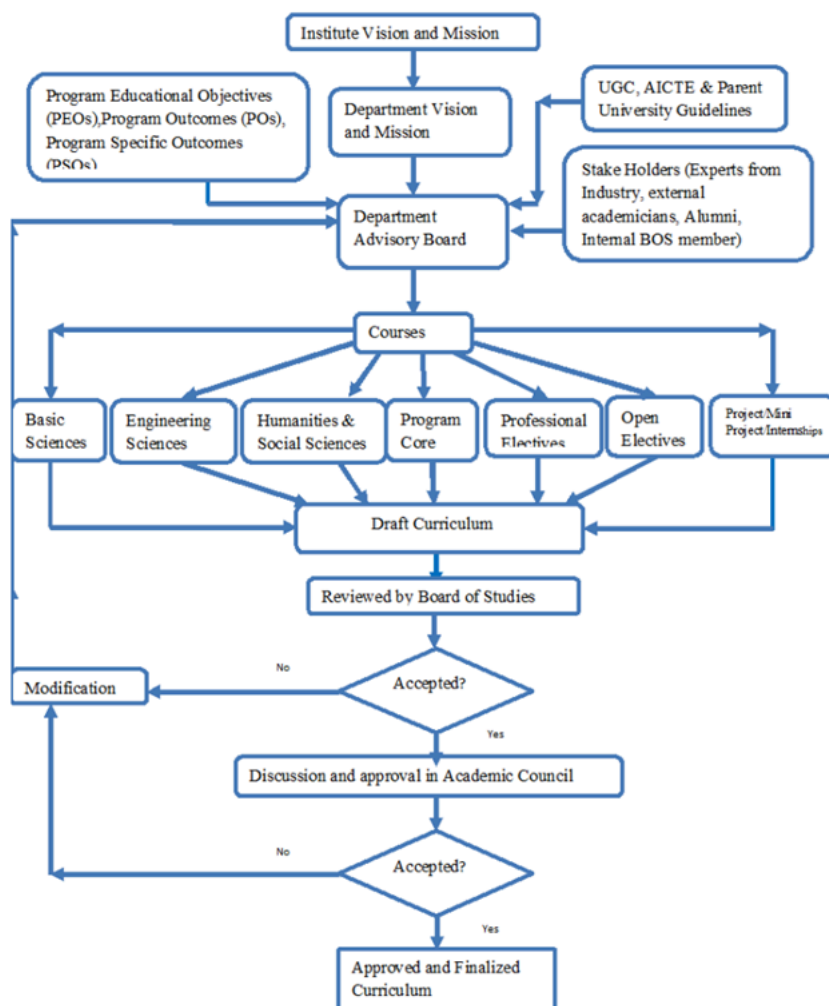
Flow chart for design/ revision of Program Curriculum and Syllabus

2.1.2 Structure of the Curriculum (5)

ID	Course Code	Course Title	Lecture (L)	Tutorial (T)	Practical (P)	Total Hours	Theory Credits	Practical Credits	Total Credits
1	BMA01001	Mathematics-I	3	1	0	4	4	0	4
2	BCH01001	Chemistry	3	0	0	3	3	0	3
3	BEC01001	Basic Electronics	3	0	0	3	3	0	3
4	BIT01001	Programming for Problem Solving	3	0	0	3	3	0	3
5	BCE01001	Basic Civil Engineering	3	0	0	3	3	0	3
6	BCH01002	Chemistry Lab	0	0	3	3	0	1.5	1.5
7	BEC01002	Basic Electronics Lab	0	0	3	3	0	1.5	1.5
8	BIT01002	Programming Lab	0	0	3	3	0	1.5	1.5
9	BCE01002	Engineering Graphics and Design	0	0	3	3	0	1.5	1.5
10	BNC01001	Induction Programme and Participation in clubs/societies	0	0	0	0	0	0	0
11	BMA02001	Mathematics-II	3	1	0	4	4	0	4
12	BPH02001	Physics	3	0	0	3	3	0	3
13	BEE02001	Basic Electrical Engineering	3	0	0	3	3	0	3
14	BHU02001	English for Business Communication	3	0	0	3	3	0	3
15	BME02001	Engineering Mechanics	3	0	0	3	3	0	3
16	BPH02002	Physics Lab	0	0	3	3	0	1.5	1.5
17	BEE02002	Basic Electrical Engineering Lab	0	0	3	3	0	1.5	1.5
18	BHU02002	Business Communication skills Lab	0	0	3	3	0	1.5	1.5
19	BME02002	Workshop and Manufacturing Practices	0	0	3	3	0	1.5	1.5
20	BNC02001	NSS/NCC/Yoga	0	0	0	0	0	0	0
21	BMA03001	Mathematics-III	3	1	0	4	4	0	4
22	BME03001	Mechanics of Solids	3	0	0	3	3	0	3
23	BME03002	Manufacturing Science and Technology-I	3	0	0	3	3	0	3
24	BME03003	Basic Thermodynamics	3	0	0	3	3	0	3
25	BHU03001	Economics for Engineers	3	0	0	3	3	0	3
26	BME03004	Material Testing Lab	0	0	3	3	0	1.5	1.5
27	BME03005	Machine Drawing	0	0	3	3	0	1.5	1.5
28	BME03006	Workshop Practice-II	0	0	3	3	0	1.5	1.5
29	BME03007	Thermal Engineering and Foundry Lab	0	0	3	3	0	1.5	1.5
30	BNC03001	Essence of India Traditional knowledge/Environmental Sciences	2	0	0	2	0	0	0
31	BME04001	Machine Dynamics-I	3	0	0	3	3	0	3
32	BME04002	Materials Engineering	3	0	0	3	3	0	3
33	BME04003	Fundamentals of Fluid Mechanics	3	0	0	3	3	0	3
34	BMA04001	Mathematics-IV	3	1	0	4	4	0	4

#	Code	Title							
35	BHU04001	Organisational behaviour	3	0	0	3	3	0	3
36	BME04004	Dynamics and Metrology Lab	0	0	3	3	0	1.5	1.5
37	BME04005	Metallographic Study and Nondestructive Testing Lab	0	0	3	3	0	1.5	1.5
38	BME04006	Workshop Practice-III	0	0	3	3	0	1.5	1.5
39	BME04007	Fluid Mechanics Lab	0	0	3	3	0	1.5	1.5
40	BNC04001	Environmental Sciences/Essence of India Traditional Knowledge	2	0	0	2	0	0	0
41	BNC04002	Summer Internship/Training	0	0	0	0	0	0	0
42	BME05001	Machine Design-I	3	0	0	3	3	0	3
43	BME05002	Manufacturing Science and Technology-II	3	0	0	3	3	0	3
44	BME05003	Fluid Dynamics and Hydraulic Machines	3	0	0	3	3	0	3
45	BMEPE501/BMEPE502/BMEPE503 Machine Dynamics/Metal Forming Process/ Gas Dynamics			3	0	0	3	3	0	3
46	BMEOE501/BMEOE502/BMEOE503 Fatigue, Creep & Fracture/Power Plant Engineering/CAD & CAM			3	0	0	3	3	0	3
47	BNC05001	Professional Ethics, Professional Law and Human Values	2	0	0	2	2	0	2
48	BME05004	Machine Design Sessional-I	0	0	3	3	0	1.5	1.5
49	BME05005	Metal Cutting and Metal Forming Lab	0	0	3	3	0	1.5	1.5
50	BME05006	Hydraulics Machine Lab	0	0	3	3	0	1.5	1.5
51	BME06001	Machine Design-II	3	0	0	3	3	0	3
52	BME06002	Heat Transfer	3	0	0	3	3	0	3
53	BMEPE601/BMEPE602/BMEPE603 Tribology/Cryogenic Engineering			3	0	0	3	3	0	3
54	BMEPE604/BMEPE605/BMEPE606 Mechanical Nanotechnology/ESA			3	0	0	3	3	0	3
55	BMEOE601/BMEOE602/BMEOE603 IC Engine/Turbomachinery			3	0	0	3	3	0	3
56	BNC06001	Financial Management, Costing, Accounting, Balance Sheet and ratio Analysis	2	0	0	2	2	0	2
57	BME06003	Advanced Production and Thermal Engineering Lab	0	0	3	3	0	1.5	1.5
58	BME06004	Machine Design Sessional-II	0	0	3	3	0	1.5	1.5
59	BME06005	Product Design and Production Tooling	0	0	3	3	0	1.5	1.5
60	BNC06001	Summer Industry Internship/Training/Project	0	0	0	0	0	0	0
61	BME07001	Advanced Mechanics of Solid	3	0	0	3	3	0	3
62	BME07002	Refrigeration and Air Conditioning	3	0	0	3	3	0	3
63	BMEPE701/BMEPE702/BMEPE703 Wind Energy/Industrial Noise Control			3	0	0	3	3	0	3
64	BMEOE701/BMEOE702/BMEOE703 Advance Trends in Manufacturing Technology			3	0	0	3	3	0	3
65	BNC07001	Project-I	0	0	6	6	0	3	3
66	BME07003	HT and RAC Lab	0	0	3	3	0	1.5	1.5
67	BNC07002	Seminar on Internship	0	0	3	3	0	1.5	1.5
68	BMEPE801/BMEPE802/BMEPE803 Automobile Enginering/OM/Fundamentals of Product Design			3	0	0	3	3	0	3
69	BMEPE804/BMEPE805/BMEPE806 Mechatronics/Two Phase Flow			3	0	0	3	3	0	3

70	BMEOE801/BMEOE802/BMEOE802	Non conventional Energy	3	0	0	3	3	0	3
71	BNC08001	Project II	0	0	12	12	0	6	6
72	BNC08002	Seminar on Project	0	0	2	2	0	1	1
		Total	**119**	**4**	**92**	**215**	**119**	**46.0**	**165.0**

2.1.3 State the components of the curriculum (5)

| Course Components	Curriculum Content (% of total number of credits of the program)	Total number of contact hours	Total number of credits
Basic Sciences	15.2	28.00	25
Engineering Sciences	13.6	30.00	22
Humanities and Social Scie	8.79	16.00	15
Program Core	37.3	85.00	61
Program Electives	10.9	18.00	18
Open Electives	7.27	12.00	12
Project(s)	5.45	18.00	9
Internships/Seminars	1.52	5.00	3
Any other (Please specify)	00	0.00	0
Total number of Credits			**165**

2.1.4 State the process used to identify extent of compliance of the curriculum for attaining the Program Outcomes and Program Specific Outcomes as mentioned in Annexure I (10)

The designed curriculum of our department is well balanced and it includes various categories of courses from Basic sciences, Engineering sciences, Humanities and Social sciences. The curriculum includes core programs, professional and open electives, Projects and Internship components necessary to analyze and design complex software solutions. The syllabus for each course has been designed to meet the compliance of the curriculum for attaining the POs and PSOs defined for the program. A comprehensive and integrated education with the objective of not only improving the quality of existing education but also to bring a radical change in its pattern and content so that academic excellence is improved and better graduates suited to today's needs are produced. Our students give presentations in seminars as per their syllabus. Our students are members of different clubs at VSSUT Burla. They participate in different technical events inside the University as well as outside the University. The curriculum is so designed that they are able to write project proposals to state as well as central agencies. Finally, they get the projects, execute them and meet the expenses to complete their projects. They write their minor and major project reports as B.Tech thesis and give presentations in front of external examiners for acquiring the graduate degree.

The curriculum designed is in-line with the above innovative education and its compliance for attaining the program outcomes and program specific outcomes is listed below: (i) A semester system is followed in which marks and grading both are given for all the components of evaluation. Classes are regularly held and the students are given home assignments on each module taught so that they can not only revise but apply the scientific principles taught for engineering applications and retain the knowledge. (ii) Class tests are sometimes conducted for all subjects so that the students are assessed the course specific outcomes. (iii) This continuous evaluation help the students to identify and rectify their weakness and makes them attain the course specific outcomes and program outcomes. (iv) Further, the students are made to participate in group discussions and seminars and this makes them attain proficiency in the subject and helps the attainment. (v) Mid-semester exams are conducted and at the end of the semester, final examinations are conducted, where questions are made by external examiners from outside the institution. Thus, external peer review is done on the evaluation of Course Specific Outcomes and Course Outcomes. (vi) Regular feedback is taken from the students through the feedback forms at each semester and the meritorious students as well as weaker students are provided opportunity to improve themselves even after normal timings and during week ends by providing extra consultation by teachers.

The process is described in the form of flowcharts as shown below:
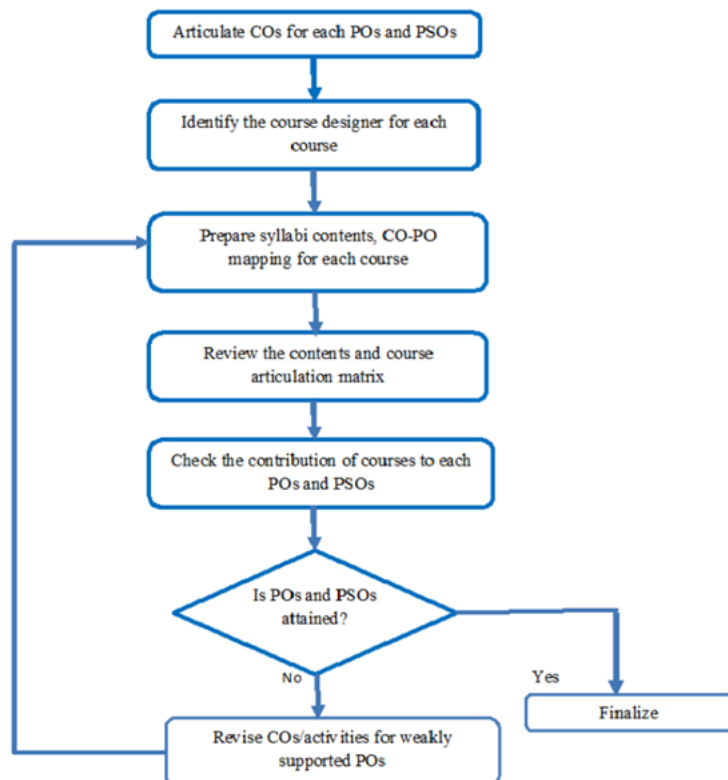
Process to identify extent of compliance of the curriculum for attaining the program Outcomes and Program Specific Outcome
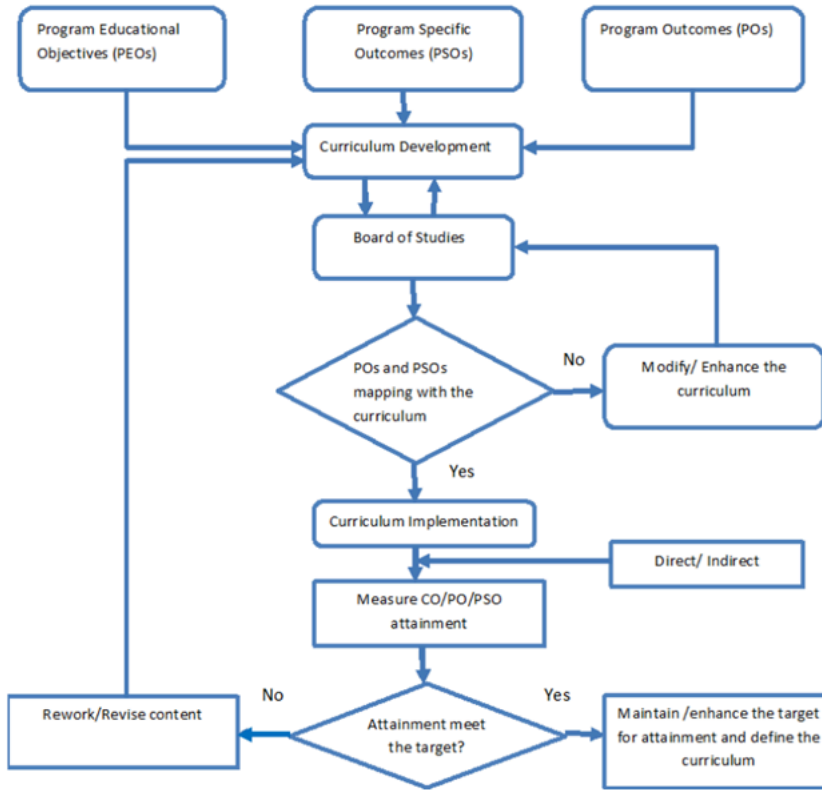
Process to ensure the compliance and attainment of POs & PSOs

2.2 Teaching-Learning Processes (70)

2.2.1 Describe Processes followed to improve quality of Teaching & Learning (15)

lr

2.2.1 Describe Processes followed to improve quality of Teaching & Learning (15)

Our primary focus here is to prioritize teaching, alongside the academic or research programs structure and administration. The main emphasis is placed on how an instructor can enhance the quality of instruction within a specific course. Subsequently, we delve into the more intricate challenge of how an academic organization, in our case, our academic department, can elevate the overall quality of its instructional program.

Adherence to the academic calendar

Our institute takes careful consideration in crafting an extensive academic calendar that outlines crucial landmarks such as class commencement, internal assessment exam dates, industrial visits, guest lectures, the last working day, lab internal exams, and the commencement of exams. Going beyond the institutes proposed events, the department introduces a range of additional activities aimed at fostering the overall development of students. Notable examples include training and placement skill development programs, guest lectures, industrial visits, and assignment dates.

To ensure accessibility, printed academic calendars and schedules are distributed to each student at the onset of every academic year and semester. Furthermore, the academic schedule is prominently displayed on various notice boards within the institute, including those in the hostel, activity center, mess, and departmental notice board. Additionally, the schedule is made available on the college website for easy reference.

Both staff members and students diligently adhere to the calendar of events, aligning their activities with the departments planned initiatives. Fig. 2.2.1 shows the details of the teaching learning process followed in our department.
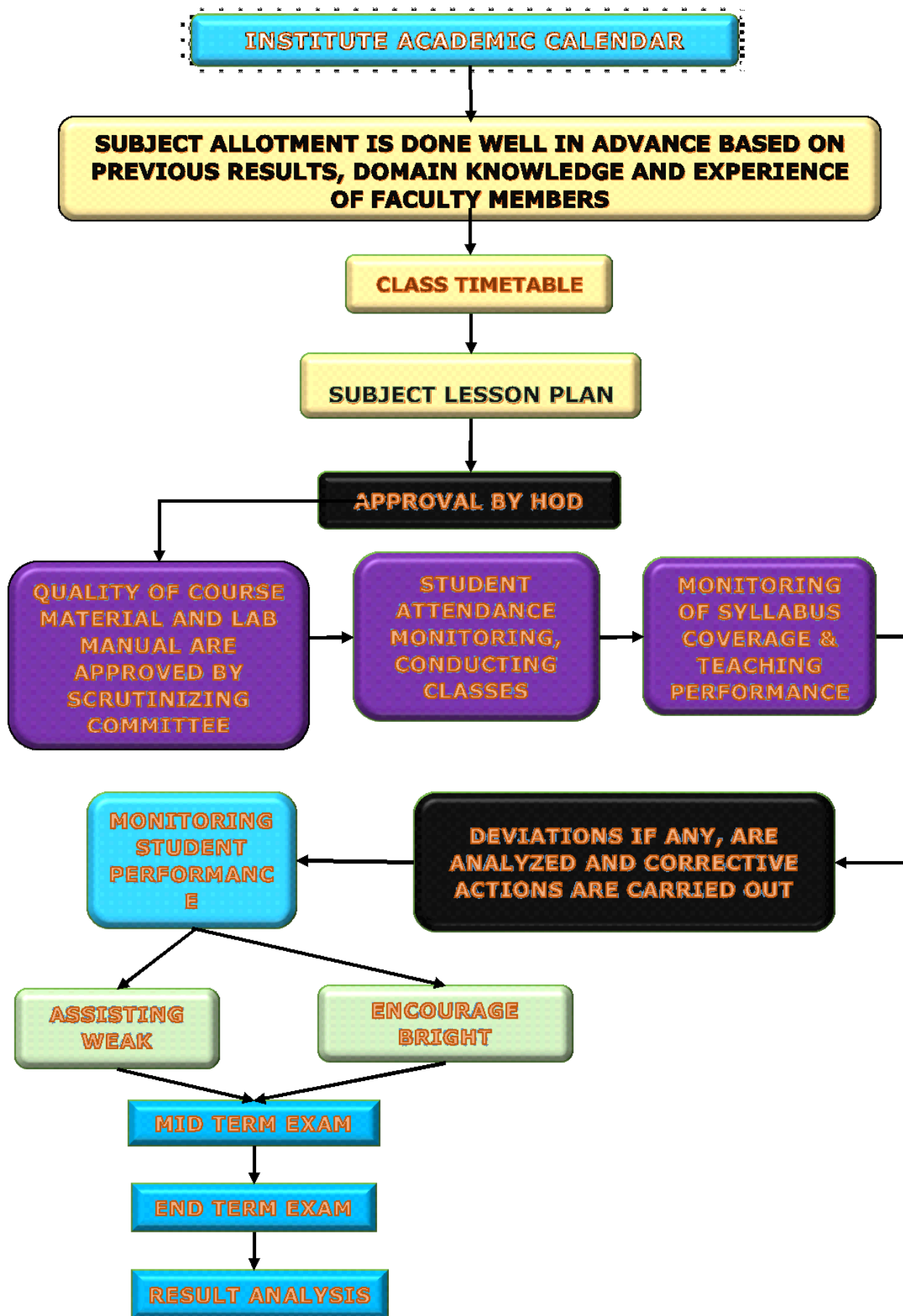
Figure. 2.2.1 Teaching-Learning Process

Pedagogical Initiatives

Pedagogical approaches play a crucial role in delivering course content, and their application varies according to the target audience. The assignment of courses is determined a minimum of one month prior to the start of the semester, based on the faculty members preferences and expertise. After course allocation, faculty members meticulously create a comprehensive course plan, including assignments, questions, quiz materials, and other relevant content. Course handouts and materials are developed in alignment with the lesson plan and desired course outcomes.

Faculty members employ diverse pedagogical methods to facilitate an engaging teaching and learning process. The department follows a well-defined procedure for course allocation and workload distribution, as illustrated in Figure 2.2.2, highlighting various pedagogical initiatives aimed at achieving successful teaching outcomes.
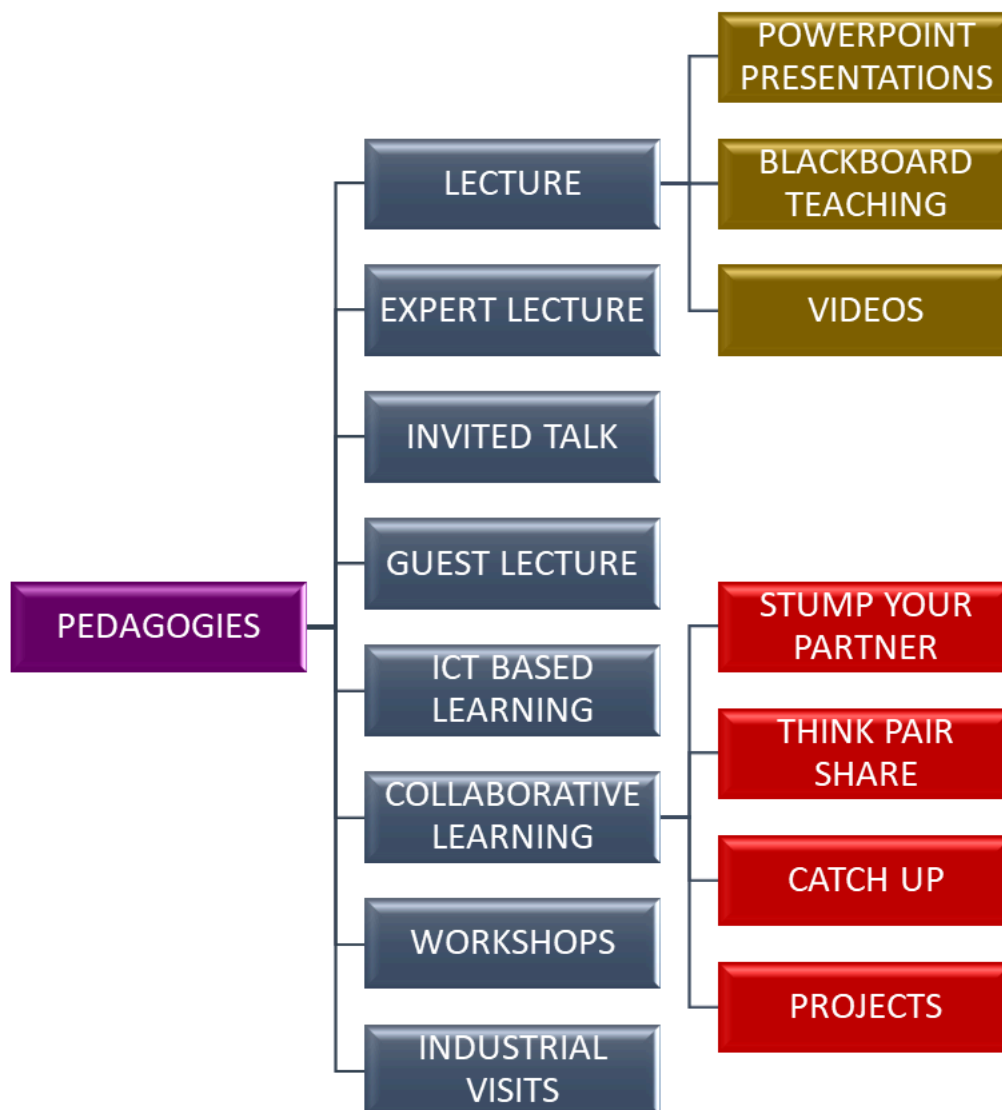
Figure. 2.2.2 Pedagogical Initiatives

<u>**Lesson plan**</u>

Each lecture within the teaching plan is meticulously outlined in lesson plans by faculty members before the semester begins. These plans undergo thorough scrutiny by the department head, receiving approval before being accessible to students. The lesson plans encompass learning objectives and the assessment of these objectives. Course coordinators design the lesson plans for each course, aligning them with the departments calendar of events.

<u>Real-time examples</u>

  i. To demonstrate the complexity and unpredictability of real issues, and to stimulate critical thinking, real-world examples are discussed.
 ii. Inter- and multi-disciplinary approaches are used for problem-solving.
iii. To demonstrate that there is no perfect solution to a particular problem, real-world problems are invoked.
 iv. Real-world examples help students think more analytically about the

         solutions.

<u>Interactive classrooms</u>

         Classes are made more interactive by encouraging student participation as follows:

   i. Asking students to elaborate on something they have written in a response paper or on the class' discussion board.
  ii. Having students to answer other students' questions.
 iii. Punctuating the lecture with questions.
 iv. Interrupting the lecture with a sample exam question.
  v. Asking students to interpret a statistic, a graph, a chart, or another visual image.
 vi. Integrating a case study or an inquiry or a problem-solving exercise into the class.
vii. Integrating student presentations into the class.
viii. Asking questions that involve higher-order thinking skills like diagnostic, challenge, evaluation, or prediction questions.
 ix. Asking students to summarize the main points that they learned in class that day and the points they found most confusing.
  x. Asking the students to explain the relevance, utility, or significance of the information presented in the class.

<u>Slide Presentation</u>

         A slide presentation is used to benefit the students by engaging in multiple learning styles, increasing visual impact, improving audience focus and providing annotations and highlights.

<u>Video Lectures</u>

         Video lectures are imparted that are archived and can be accessed anytime anywhere. For specific topics and concepts, video can be used by the novice students who have lower knowledge to process the concepts. The teachers recommend NPTEL lectures for different topics, which can be accessed by the students in the hostels and the institute computer centre.

Collaborative learning (Theory subjects and Laboratory)

   i. Groups comprising a maximum of five to six students are formed in each class.

   ii. One from the group is designated as the group leader.

   iii. The faculty may assign each group tasks and the respective group leader provides a report on the activity.

   iv. An assessment of the report is done by the faculty to analyze the expected outcome from the activity is achieved.

   v. The tasks assigned could be a minimum of three in each semester as decided by the faculty member.

   vi. The focus of the tasks is on learning new technologies, enhance the knowledge on a particular topic, studying new tools to be in pace with the industry, doing some minor projects, etc.

   vii. Additional experiments could be assigned to each group in lab sessions.

   viii. The faculty encourages each group to disseminate the knowledge they have gathered to others.

Assignments

The purpose of writing an assignment is to help each student develop research and communication skills, so they obtain the necessary information and literary skills to complete the engineering curriculum.

Writing assignments is a flexible means of demonstrating learning as well as a method of exploring ones thinking to stimulate learning. The mechanical engineering department strictly follows this method.

   i. A minimum of two to four assignment is given for each course in a semester.

   ii. The assignment given could be theoretical or practical.

   iii. The assignments are designed so that the COs, POs, and PSOs are covered in the questions asked in the assignments.

Conducting Quiz

   i. Quizzes are conducted for all courses in all semesters.

   ii. At least one quiz competition is held per course in semester.

   iii. The faculty keeps a document of the quiz questions.

   iv. The mode of conducting a quiz is oral/written in the class.

   v. Quiz Competitions are organized to promote academic excellence and to provide a venue for interaction amongst students.

Tutorials

Tutorials are generally intended to -

   i. Enables the students to pursue their academic interests within the context of the subject.

   ii. Helps the students to gain a deep understanding of the subject matter.

   iii. Develop students' ability to think and act like a professional in their discipline.

   iv. Develop students' necessary academic skills like identification and evaluation of relevant resources, effective communication, effective time-management etc.

   v. For each subject, at least one hour every week is allotted for conducting tutorials, as shown under the heading "Structure of Curriculum" above.

   vi. A tutorial register is maintained for each subject and regularly maintained by the concerned faculty.

Lectures/ Seminars

Every year many eminent personalities are invited from a variety of fields, articulating their thoughts and elaborating on their well-known works, ranging from current rages to the age-old topics.

Internal Assessment Tests

   i. One internal assessment test is conducted in every semester.

   ii. The duration of each test is one hour.

   iii. The results of each test are analyzed to identify weak and bright students.

   iv. The bright students are assigned some tasks by the faculty to encourage their performance.

   v. Remedial classes and tests are conducted for the weaker students after each test, and the remedial test results are analyzed to identify the impact.

Industrial Training and Industrial Visits

The objectives of the industrial training are to expose the students to the engineering practice which is specific to their course specialization and to the nature of the industry selected to expose the students to the responsibility of an engineer and the engineering profession to develop the students' communication skills that include daily interaction within the working environment and technical writing.

   i. The students of the mechanical engineering department are deputed to renowned industries for undergoing industrial training of a minimum of 6 weeks, at 5th and 6th semester levels.

   ii. The same is evaluated at the end of the 7th semester.

   iii. Also, the students have several industrial visits depending upon faculty members.

Methodologies to support weak students and encouraging bright students:

   i. The students scored above 80% marks belong to the group of bright students. The respective faculty will decide the measures taken to encourage bright students.

   ii. The measures taken include the following, and additional actions may be added according to the requirement.

   iii. Recommend some quality references.

   iv. Provide details of books to be referred.

   v. Suggest e-resources and journals.

   vi. Introduce a new tool/ software.

   vii. Bright students are asked to help weak students to boost their morale.

   viii. Prepare a quiz on topics from the subject.

Figure 2.2.3, shows the flow chart for followed to support weak students and encouraging bright students aimed at achieving successful teaching outcomes.
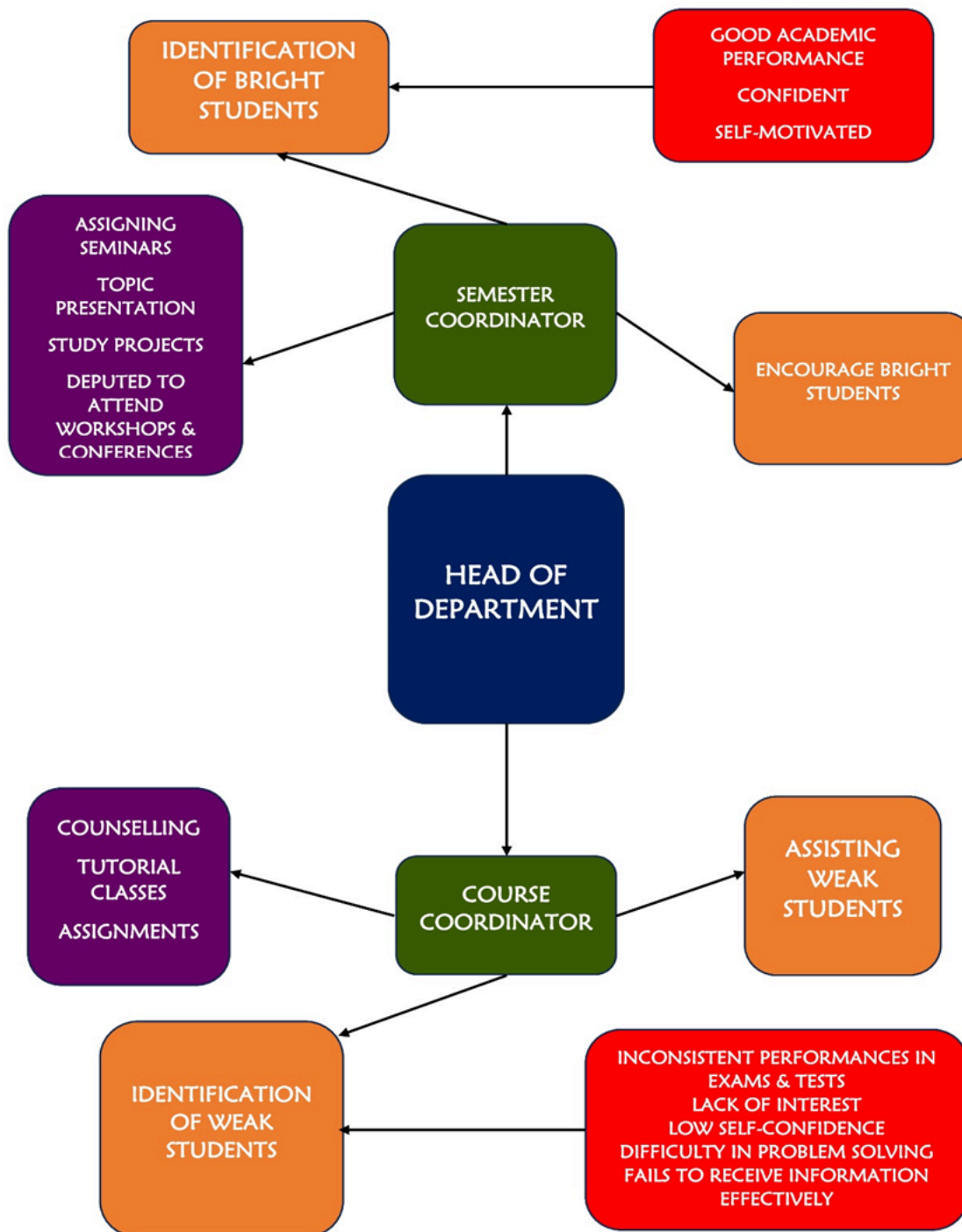
Fig 2.2.3 Methodologies to support weak students and encouraging bright students

<u>**Assistance to weak students**</u>

Theory Subjects

 i. One internal assessment test/ midterm test is conducted each semester to assess the student's performance in theory subjects.

 ii. After each test, the faculty analyses the results and categorize the students into two groups.

 iii. The students who scored less than 50% marks belong to a group of weak students and above 80% belong to the group of bright students.

 iv. Remedial classes are conducted for the weak students by each faculty.

 v. The number of hours taken for remedial classes is decided by the faculty as required.

 vi. A remedial test is conducted for the weaker students after that and the results are analyzed to identify the impact of the remedial classes.

 vii. The respective faculty take additional measures in cases where the students fail to achieve the objective of remedial classes.

<u>The process to identify weak students in Lab</u>

 i. Based on the marks awarded for daily classwork, weak students are identified during the conduct of lab work.

 ii. A remedial class is given to the weak students in which they are made to do the experiments again, and calculations are explained to them.

 iii. Their performance is re-evaluated based on marks awarded for lab records.

 iv. The same procedure is repeated at the end of the second half of the experiments.

 v. The respective faculty take additional measures in cases where the students fail to achieve the objective of remedial lab classes.

 vi. The final exam is conducted at the end of the semester, and the same is repeated.

Quality of classroom teaching (Observation in a class)

To facilitate better classroom teaching the faculty members to arrange the students in a classroom is such a way that the faculty member is constantly monitoring the weaker students. It is always ensured that a weaker student is seated with a bright student. The classification of weaker and bright students are based on the grades in the previous semesters and the mutual consultation of the faculty members. There is constant interaction between the students and the faculty in a class. The faculty members encourage the students to interrupt the teacher during the lecture for asking questions. The relevance and the depth of the question help the faculty to assess the quality of the students and also the interest of the students in acquiring the knowledge. It consists of the following important points

1. Faculty member interrupts during the lecture and asks questions regarding the topics which the faculty was discussed previously in the classroom. This ensures that the students remain attentive during the delivery
2. The weaker students are frequently asked to repeat what the faculty are teaching in that particular class so that the students continuously maintain the rough notebook in the classroom.
3. The faculty member would make at least two rounds in the classroom so that the students in the classroom record the lectures.
4. Numerical problems in the classroom are assigned to the students, group-wise. Each group is monitored so that a healthy atmosphere of discussion among the students is initiated to solve the problems.

Conduct of experiments and continuous assessment in the laboratory

Conduct of Laboratory Experiments

The laboratories are equipped with the necessary infrastructure to facilitate effective conduction of the experiments in the laboratory. For the laboratory sessions, students are asked to bring the lab manual, observation book and record book. Students are advised to study the theory behind the experiment and the procedure to experiment with the lab session. Students conduct the experiments and record the observations in the observation book. After completion of the experiment, students are encouraged to discuss the learning from the test.
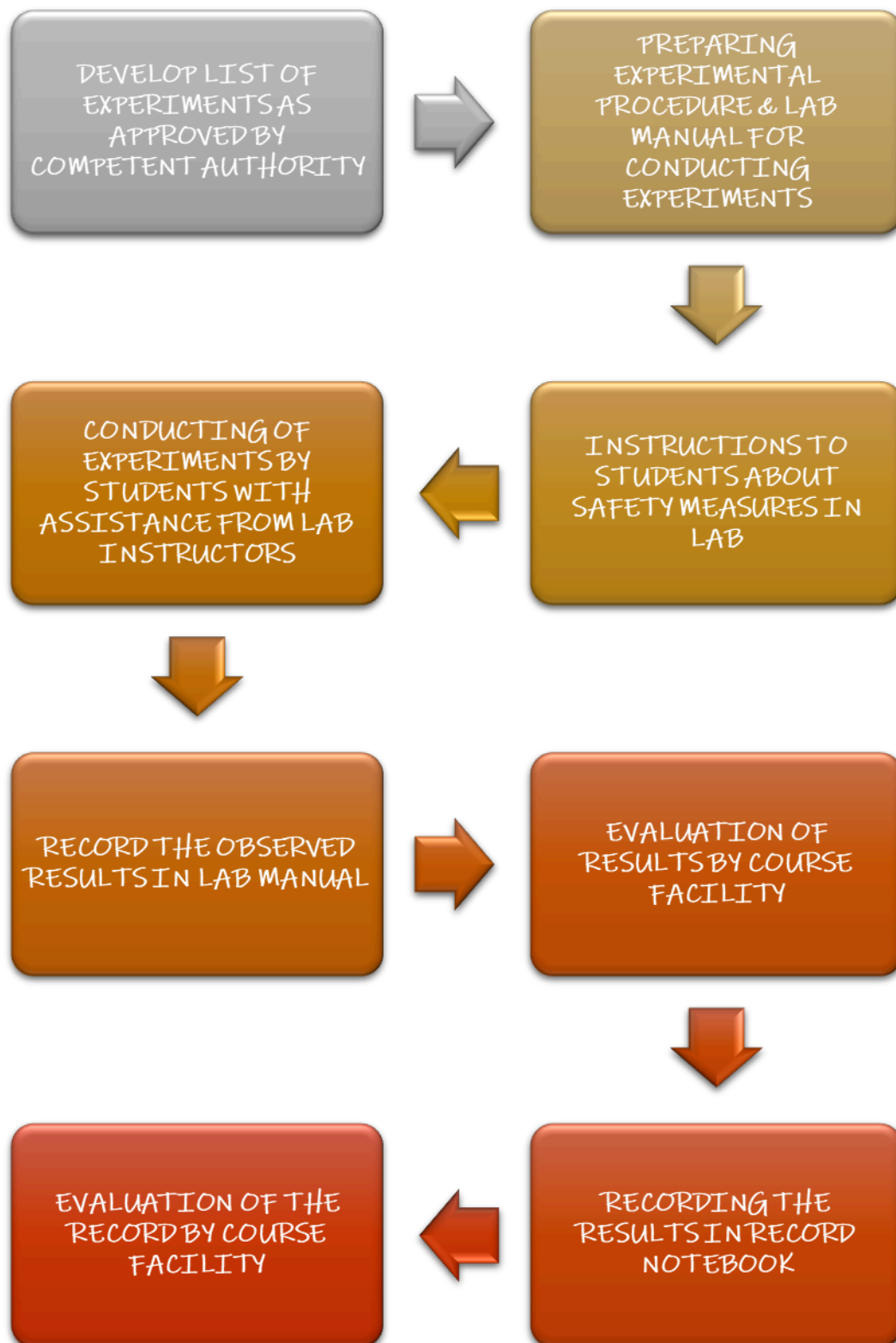
Fig.2.2.4 Process flow of Conducting Experiments in Laboratory

Continuous Assessment in the Laboratory

1. A lab manual is maintained in each laboratory.
2. Each laboratory includes experiments in the prescribed syllabus.
3. All the experiments in the prescribed syllabus are compulsorily followed and completed by the end of the semester.
4. Students should complete at least two or three experiments that cover the advanced topics in each laboratory.
5. The faculty could assign open-ended Experiments or the students may choose an experiment on their own to be completed in the laboratory.
6. The objective and the procedure for all experiments in the prescribed syllabus and is available in the lab manual.
7. The solution, along with the objective and the procedure is added to the lab manual for the experiments that cover advanced topics.
8. Groups comprising a maximum of five to six students are formed in each class.
9. One from the group is designated as the group leader. The faculty may assign each group tasks and the respective group leader provides a report on the activity.
10. Every student maintains a rough record to record the details of the work done in each laboratory session.
11. The students are directed to write the step-by-step procedure to achieve a solution for the given experiment.
12. The faculty-in-charge checks the procedure, and then students can proceed with experimenting.
13. To facilitate the continuous monitoring of the experiments performed by the student, Ph.D. scholars are always associated with the concerned faculty member.
14. A Ph.D. scholar supervises each group of the students. The Ph.D. scholars initially assess the students who are finalized with the consultation of the faculty member.
15. The student should record the observations in the rough record while experimenting.
16. Students may also analyze the data to plot graphs or other related work.
17. The faculty-in-charge verifies the final output.
18. Students should add the details of the experiments done in the laboratory to the prescribed record book.
19. Students can appear for the Practical Examination only if the faculty-in-charge certifies the record.

Students feedback of teaching-learning process and action taken

Students feedback

1. It is valuable for identifying areas for instructional improvement.
2. The HOD provides suggestions for improvement based on the feedback of the students wherever needed.
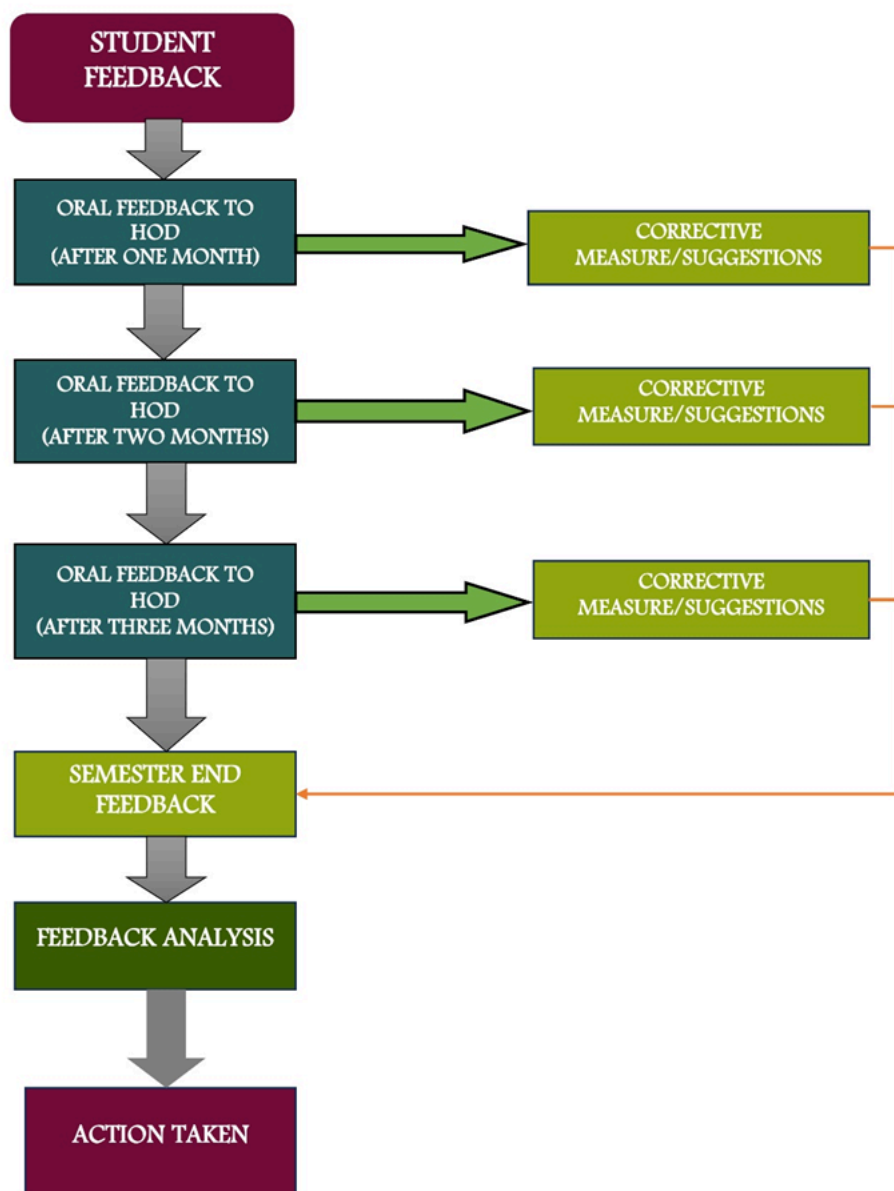
Fig. 2.2.5 Flow Chart of Students feedback of teaching learning process

<u>Feedback analysis</u>

The feedback forms are collected and are submitted to the HOD for perusal. Depending upon the feedback, the HOD communicates the feedback to the respective faculty member to know their strengths and deficiencies to enhance their teaching skills. The HOD gives necessary suggestions, guidance, and advice for the areas where improvement is needed. The feedback remains strictly confidential between the HOD and the concerned faculty member so that the morale of the faculty does not get affected.

2.2.2 Quality of end semester examination, internal semester question papers, assignments and evaluation (15)   lr

A. Process for Internal Semester Question Paper setting and evaluation and effective process implementation

To ensure the quality of the internal semester question papers, the following process is adopted:

1. Regular midterm exams are held in adherence to the academic calendar of the institute.
2. The question papers are set in such a way that the COs maps with the questions asked. The question papers are examined and verified by the HOD to ensure the standard of the question paper and ensures that covered. The questions papers are modified if HOD is not satisfied with the standard requirements of the question paper.
3. The questions asked are well balanced to ensure that all the components such as knowledge, comprehension, application, analysis, etc. are encompassed.
4. The respective faculty prepare the scheme of evaluation and solution to the problems in the question papers in advance.
5. The faculty record the CO coverage and the marks allotted.
6. The evaluated answer books are returned to the students by the faculty after evaluation in the midterm exam. It is the statutory requirement of the institute to show the estimated answer books to the students. Th feedback regarding the evaluation of each question.
7. The students are encouraged to discuss any doubt or discrepancy regarding the evaluation.
8. The marks of the students are forwarded to the controller of examinations only after the students are satisfied with the evaluation.
9. The students are required to append "Seen" or "satisfied" on the evaluated answer books so that no student is left without seeing his evaluated answer books.

The process to ensure questions from outcomes/learning level perspective.

1. For each subject, a tentative question list is prepared according to the COs.
2. While setting the question paper, previous institute exam papers of at least three years are taken into consideration to avoid repetition of questions.

The questions asked are of three categories:

1. Approximately one-third of the questions are of elementary level and can be answered by an average student, which requires fundamentals of the course.
2. Approximate one-third of the questions need analysis and use of content covered as per syllabus.
3. Remaining one-third of the questions are based on an advanced level. The solution to these questions/problems requires a certain amount of critical thinking, analysis and knowledge.

Evidence of COs coverage in-Class Test/Mid-Term Tests

1. All class tests and mid-term test papers cover all topics relevant to COs.
2. A record of all class tests / mid-term tests/end semester test is maintained and submitted to the HOD for his perusal to ensure that all the topics are covered in these exams.
3. HOD/faculty members ensure that the questions asked previously (midterm) are not repeated so that significant portions of COs are covered.
4. All the faculty members are compulsorily required to maintain a question paper file (soft and hard copy) where all the question papers are saved so that question paper for end term is set without repeating any que
5. This scheme helps to prevent the repetition of questions and coverage of maximum COs.

Quality of assignments and its relevance to COs

1. The respective faculty members announce the assignment issue and submission dates.
2. A minimum of two assignments are given for each subject. To ensure the quality of the assignments following procedure is adopted.
3. The assignments are designed to map the COs of the course.
4. The assignments are designed to cover both the theoretical and numerical portion of the course.
5. The questions given are categorized into knowledge, comprehension, application, analysis, evaluation and synthesis levels.
6. To ensure maximum exposure in the subject, it is a departmental practice that a minimum of 5 different questions is asked for each assignment.
7. Faculty can choose the type of assignment to be given (questions/ open book test/ seminars or presentations).
8. In the evaluation of the assignment, the required feedback corresponding to each answer is provided by the faculty, so that the student can understand the mistake.
9. The faculty, after submission of every assignment, explains the solution of the questions in the class, which enables the students to perform well in the final examination.
10. For any genuine reason, if a student is unable to perform well in the given internal assessment tests or assignments, and improvement test is given to him/her.
11. If a student remains absent for all the tests conducted, they are marked as "Absent" in the result.
12. Assignments are used as a tool for practice, and evaluation is based purely on internal assessment.
13. The marks scored by each student are recorded separately for each Course Outcome.
14. The CO attainment level is calculated after each test and assignment.
15. The CO attainment falls into three levels.

2.2.3 Quality of student projects (20)   Ir

A. Process for identification of student's projects

The projects are divided into 3 major groups depending on the availability of the specialization of the faculty:

1. Design Engineering
2. Thermal Engineering
3. Production Engineering

A.1 Identification of project and allocation methodology to faculty members

Project Identification and Faculty Members allocation

i. The Head of Department /PIC provides the list of faculty members and their area of specialization to the students at least one month before the end of the 6th semester. The Head of Depart the industry professionals/alumni for guiding the students.

ii. The project coordinator advises the students to form a group of 4-5 members, and identify the project area/title, obtain the consent of faculty/industry professionals to guide them. The Pro these details from the students at least two weeks before the end of the 6th semester. The group of students includes students from weak, average and bright student categories.

iii. The Head of Department/PIC/project coordinator finalizes project titles, project guides, groups of students and displays the allocation at least one week before the end of the 6th semester.

iv. The Head of the Department/PIC/project coordinator allocates laboratory resources for in-house projects and assigns the number of days per week for working on the projects in the industr carried out in industry).

v. The Head of Department/PIC/project coordinator lists the types of projects based on Environment, Safety, Ethics, Cost and category of the project i.e. whether it is application-based, Product Research-based projects.

Fig 2.2.6: Evaluation Process of the Student Project

A.2 Process for continuous monitoring of student projects

Students are directed to maintain a project diary to record the activities on day-to-day basis regarding the project work. The recorded included the details of their interactions with the project supervisor.

The process to ensure the quality of student projects

i. The Project evaluation committee and the project guide together will analyze the nature of the project during the different stages of evaluation and make sure that the work is environment-ethics, and is cost-effective.
ii. The projects are classified into different areas, and their relevance to PO's and PSO's are identified to ensure its quality.

B. Project related to industry

The students are encouraged to take up industry-related projects. This objective is attained by choosing a problem from the industry where the students have undergone practical training at the lower semester. During the practical training, the students encounter different problems in which they choose their final year project.

C. Process for monitoring and evaluation

The project work is divided into small components. Each component of the work is assigned to each student in the group. The supervisor maintains a diary regarding the work carried out by the students working under him. The supervisor interacts periodically, usually after 1 week with the students to determine the progress and to evaluate the contribution of each student. Thus, foolproof monitoring and evaluation are ensured. The departmental project evaluation committee meets twice in the 7th and 8th semester to assess the progress of the projects.

2.2.4 Initiatives related to industry interaction (10)   Ir

A. Industry supported laboratories

Conducted training programs with local industries for implementation of Industrial Engineering techniques for increasing productivity and cost reduction.

B. Industry involvement in the program design and curriculum

As has been stated in the process for designing the program curriculum (2.1.1), valuable feedback is sought from the employer (industry) where the students have been placed so that the performance of the students is enquired. Depending upon the performance as revealed by the feedback of the employer, necessary changes are made in the curriculum.

Guest lectures by various industry Experts for Partial delivery of the Courses.

C. Industry involvement in partial delivery of any courses for students

i. Expert talks enrich the students and faculty members with the latest updates from the industry.
ii. The eminent personalities of various fields and stalwarts of the industry are invited to lend valuable information from their first-hand experience, which serves as an ideal platform for the studen
iii. The department organizes expert lectures on various topics and issues related to the curriculum of Engineering in which distinguished technocrats are invited to deliver their expert le enhancement of the students and the staff.
iv. There is always an endeavor to create opportunities for students to learn and interact with industry experts.

D. Impact Analysis of Industry Institute Interaction and action taken

i. Interaction between the student and the industry improves upon the attitude, knowledge and skills, such as to fit any desirable organization in the future.
ii. The ability to apply engineering knowledge is improved by the internship program since it provides a platform to apply theoretical knowledge learned in the classroom practically.
iii. Practical knowledge is improved, which in turn helps to elevate their career opportunities.
iv. Placement opportunities are improved.
v. The effectiveness of this practice can be gauged by the great response of the participants for the workshops.
vi. The feedback is obtained from the students at the end of 8th semester to assess the achievement of the objectives of the industrial training/ summer training/internship/ industrial tour.

2.2.5 Initiatives related to industry internship/summer training (10)   Ir

A. Industry Training /Tours for students

Industrial training/tours are organized at 7th and 8th-Semester levels when the students are fully acquainted with the different streams of mechanical engineering.

B. Industrial / internship/ summer training of more than two weeks and post training assessment

It constitutes an important component of the curriculum of the department.

Post-training assessment of the practical training is evaluated at the end of the 7th semester by a committee constituted by the HOD. The students give a PPT wherein they provide a detailed report of the work done. An interaction session follows the presentation. The students are compulsorily supposed to submit a hard copy of the work done and are maintained in the department as a record. The credits are awarded based on the presentation, interaction and practical training record.

C. Impact Analysis of Industrial Training

The students are provided with the feedback forms to rate their industrial training/internship. It is done to identify the level of achievement. The feedback is obtained from the students at the end of the 7th semester to assess the achievement of the objectives of the industrial training/ summer training/internship/ industrial tour.

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3 COURSE OUTCOMES AND PROGRAM OUTCOMES (175)   Tot

Define the Program specific outcomes

PSO1	Achieve excellence in thermal engineering, machine design, manufacturing systems and industrial engineering by acquiring knowledge in mathematics and basic science.
PSO2	To implement the learned principles of mechanical engineering to analyze, interpret and provide solutions to the real-life problems by using state of-art facilities.
PSO3	Take-up career in industries or to pursue higher studies in mechanical and interdisciplinary programs with high regard for ethical values, environmental and social issues.

3.1 Establish the correlation between the courses and the Program Outcomes (POs) & Program Specific Outcomes (25)

No. of Core Courses : 8	C2 : 3	C3 : 3	C4 : 2

Note : Number of Outcomes for a Course is expected to be around 6.

Course Name :	C2 01	Course Year :	2020-2021

Course Name	Statements
C2 01.1	Gain a fundamental understanding of the concepts of stress and strain by analysis of solids and structures
C2 01.2	Study engineering properties of materials, force-deformation, stress-strain relationship & learn fundamental principles of equilibrium, compatibility, and force☐deformation relationship, and principle of superposition in linear solids and structures
C2 01.3	Analyze determinate and indeterminate axial members, torsional members, and beams, and determine axial forces, torque, shear forces, and bending moments
C2 01.4	Learn the fundamental concepts of the method of superposition, flexibility method, and stiffness method as applied to problems involving statically determinate and indeterminate axial and torsional members, and beams.
C2 01.5	Analyse and design thin, thick cylinders and springs.

Course Name :	C2 02	Course Year :	2020-2021

Course Name	Statements
C2 02.1	Define basic concept and fundamentals of sand casting
C2 02.2	Apply knowledge of the processes and furnaces used for melting of ferrous and non☐ferrous metals.
C2 02.3	Incorporate basic concept of some special casting processes.
C2 02.4	Define fundamental knowledge of welding and the details about the welding and cutting processes.
C2 02.5	Implement the knowledge of advanced welding processes in various applications.

Course Name :	C2 03	Course Year :	2020-2021

Course Name	Statements
C2 03.1	Define the concepts of continuum, Thermodynamic systems, Thermodynamic properties, Thermodynamic equilibrium and evaluate properties ofpure substance, Work and Heat
C2 03.2	Apply the First law of thermodynamics to analyze closed system and control volume.
C2 03.3	Apply the Second Law of Thermodynamicsto evaluate the performance of thermal power plant, refrigerator and heat pump and evaluate principle of increase of entropy.
C2 03.4	Evaluate Availability, Irreversibility and the Second Law efficiency.
C2 03.5	Analyze Air standard cycles.

Course Name :	C3 01	Course Year :	2021-2022

Course Name	Statements
C3 01.1	Analyze the stress and strain on mechanical components; and understand, identify and quantify failure modes for mechanical parts
C3 01.2	Demonstrate knowledge on basic machine elements used in machine design; design machine elements to withstand the loads and deformations for a given application, while considering additional specifications.
C3 01.3	Approaches a design problem successfully, taking decisions when there is not a unique answer and proficient in the use of software for analysis and design.
C3 01.4	To work in teams to analyze and design various types of brakes and clutches and present their designs orally and in writing
C3 01.5	To identify the characteristics of their designs that has safety, societal, or environmental impact.

Course Name :	C3 02	Course Year :	2021-2022

Course Name	Statements
C3 02.1	Analysis of critical factors in material removal processes
C3 02.2	Evaluate the role of each process parameter during machining of various advanced materials
C3 02.3	Solve the various problems for the given profiles to be imparted on the work specimens and Design of fixtures and jigs for proper adaptability in the manufacturing system
C3 02.4	Selection of the best process out of the available various advanced nontraditional machining processes for the given job as

C3 02.5	Use of latest gadgets in automation in machining

Course Name :	**C3 03**	Course Year :	**2021-2022**

Course Name	Statements
C3 03.1	Develop and analyze models for the prototype using Dimensional analysis.
C3 03.2	Apply the N-S equation for differentPhysical problems.
C3 03.3	Describe and analyzethe working of various types of hydraulic turbines
C3 03.4	Describe and analyzethe working of centrifugal and reciprocating pumps
C3 03.5	Design various components of pumps and turbines.

Course Name :	**C4 01**	Course Year :	**2022-2023**

Course Name	Statements
C4 01.1	Understand the three dimensional concept of stress-strain behaviour of materials.
C4 01.2	Comprehend the usage of energy methods for solving structural problems.
C4 01.3	Compute the hoop stress, radial stress and radial displacement for thick cylinders subjected to internal and external pressure.
C4 01.4	Compute the stresses in curved beams subjected to bending, beams subjected to unsymmetrical bending and locate the shear center.
C4 01.5	Analyze Repeated stresses & fatigue in metals.

Course Name :	**C4 02**	Course Year :	**2022-2023**

Course Name	Statements
C4 02.1	Understand the basic concepts of refrigeration system.
C4 02.2	Understand the vapour compression cycle and interpret the usage of refrigerants.
C4 02.3	Explain the components of vapour compression system and vapour absorption systems.
C4 02.4	Demonstrate the use of psychrometry and psychromtric properties in analyzing Air conditioning systems.
C4 02.5	Discuss the theory and concept of comfort air-conditioning systems.

Course Articulation Matrix

1 . course name : C201

Course	Statements	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
C201.1	Gain a fund	-	-	3	-	-	1	-	1	-	1	-	1
C201.2	Study engir	-	1	1	-	2	-	-	1	-	-	-	-
C201.3	Analyze det	-	2	1	-	1	-	-	3	-	2	-	-
C201.4	Learn the ft	-	1	1	-	1	-	-	2	-	3	-	-
C201.5	Analyse and	-	1	2	-	1	-	-	2	-	1	-	2
Average		0.00	1.00	1.60	0.00	1.00	0.20	0.00	1.80	0.00	1.40	0.00	0.60

2 . course name : C202

Course	Statements	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
C202.1	Define basi	3	1	3	2	3	-	-	-	1	2	-	2
C202.2	Apply know	3	1	3	2	3	-	-	-	1	2	-	2
C202.3	Incorporate	3	1	3	2	3	-	-	-	1	2	-	2
C202.4	Define fund	3	1	3	2	3	-	-	-	1	2	-	2
C202.5	Implement t	3	1	3	2	3	-	-	-	1	2	-	2
Average		3.00	1.00	3.00	2.00	3.00	0.00	0.00	0.00	1.00	2.00	0.00	2.00

3 . course name : C203

Course	Statements	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
C203.1	Define the (	3	3	2	3	2	1	1	-	-	-	-	2
C203.2	Apply the F	3	3	2	3	3	1	1	-	-	-	-	2
C203.3	Apply the S	3	3	1	2	1	1	1	-	-	-	-	2
C203.4	Evaluate Av	3	3	2	-	2	1	1	-	-	-	-	2
C203.5	Analyze Air	3	3	3	2	2	1	1	-	-	-	-	2
Average		3.00	3.00	2.00	2.00	2.00	1.00	1.00	0.00	0.00	0.00	0.00	2.00

4 . course name : C301

Course	Statements	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
C301.1	Analyze the	3	1	3	3	1	1	-	1	-	-	1	1
C301.2	Demonstrat	3	1	3	3	1	1	1	1	1	-	-	-
C301.3	Approaches	3	1	3	3	1	1	-	1	-	-	-	1
C301.4	To work in t	3	1	3	3	1	1	1	1	-	1	1	1
C301.5	To identify t	3	1	3	3	1	1	-	1	-	-	-	-
Average		3.00	1.00	3.00	3.00	1.00	1.00	0.40	1.00	0.20	0.20	0.40	0.60

5 . course name : C302

Course	Statements	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
C302.1	Analysis of	3	2	3	2	2	1	-	-	-	-	-	3
C302.2	Evaluate th	2	2	2	3	3	3	-	-	-	-	-	2
C302.3	Solve the va	2	1	3	2	2	2	-	-	-	-	-	2
C302.4	Selection of	2	3	1	3	3	1	-	-	-	-	-	2
C302.5	Use of lates	3	3	2	1	1	1	-	-	-	-	-	3
Average		2.40	2.20	2.20	2.20	2.20	1.60	0.00	0.00	0.00	0.00	0.00	2.40

6 . course name : C303

Course	Statements	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
C303.1	Develop an	3	3	2	1	1	2	1	-	-	-	-	1
C303.2	Apply the N	3	3	2	1	1	2	1	-	-	-	-	1
C303.3	Describe an	3	3	2	1	1	2	1	-	-	-	-	1
C303.4	Describe an	3	3	2	1	1	2	1	-	-	-	-	1
C303.5	Design vari	3	3	2	1	1	2	1	-	-	-	-	1
Average		**3.00**	**3.00**	**2.00**	**1.00**	**1.00**	**2.00**	**1.00**	**0.00**	**0.00**	**0.00**	**0.00**	**1.00**

7 . course name : C401

Course	Statements	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
C401.1	Understand	1	3	2	-	-	-	-	-	1	-	-	3
C401.2	Comprehen	-	-	3	-	-	-	1	2	-	1	-	1
C401.3	Compute th	-	2	-	-	-	2	3	2	-	-	-	2
C401.4	Compute th	-	-	-	-	1	-	-	-	-	-	-	2
C401.5	Analyze Re	-	-	-	1	-	-	-	2	-	-	2	3
Average		**0.20**	**1.00**	**1.00**	**0.20**	**0.20**	**0.40**	**0.80**	**1.20**	**0.20**	**0.20**	**0.40**	**2.20**

8 . course name : C402

Course	Statements	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
C402.1	Understand	1	3	3	1	-	1	2	1	1	-	-	2
C402.2	Understand	2	3	1	1	2	-	-	-	2	-	-	2
C402.3	Explain the	1	3	1	2	2	-	-	-	3	-	-	2
C402.4	Demonstrat	2	3	-	1	2	-	-	-	2	-	-	2
C402.5	Discuss the	-	2	1	1	2	1	-	1	1	-	-	1
Average		**1.20**	**2.80**	**1.20**	**1.20**	**1.60**	**0.40**	**0.40**	**0.40**	**1.80**	**0.00**	**0.00**	**1.80**

1 . Course Name : C201

Course	PSO1	PSO2	PSO3
C201.1	2	1	2
C201.2	1	1	3
C201.3	3	2	1
C201.4	3	1	1
C201.5	1	-	3
Average	**2.00**	**1.00**	**2.00**

2 . Course Name : C202

Course	PSO1	PSO2	PSO3
C202.1	3	3	3
C202.2	3	2	1
C202.3	3	1	2
C202.4	3	1	1
C202.5	3	3	3
Average	**3.00**	**2.00**	**2.00**

3 . Course Name : C203

Course	PSO1	PSO2	PSO3
C203.1	3	1	3
C203.2	3	2	1
C203.3	3	3	2
C203.4	3	3	3
C203.5	3	1	1
Average	**3.00**	**2.00**	**2.00**

4 . Course Name : C301

Course	PSO1	PSO2	PSO3
C301.1	3	2	3
C301.2	3	1	3
C301.3	3	1	1
C301.4	3	3	2
C301.5	3	3	1
Average	**3.00**	**2.00**	**2.00**

5 . Course Name : C302

Course	PSO1	PSO2	PSO3
C302.1	3	1	2
C302.2	3	3	3
C302.3	3	1	3
C302.4	3	2	1
C302.5	3	3	1
Average	**3.00**	**2.00**	**2.00**

6 . Course Name : C303

Course	PSO1	PSO2	PSO3
C303.1	3	3	3
C303.2	1	1	3
C303.3	2	1	3
C303.4	3	2	3
C303.5	1	3	3
Average	2.00	2.00	3.00

7 . Course Name : C401

Course	PSO1	PSO2	PSO3
C401.1	1	1	2
C401.2	3	1	3
C401.3	3	2	3
C401.4	2	1	1
C401.5	1	-	1
Average	2.00	1.00	2.00

8 . Course Name : C402

Course	PSO1	PSO2	PSO3
C402.1	2	1	3
C402.2	1	3	3
C402.3	3	2	1
C402.4	3	1	1
C402.5	1	3	2
Average	2.00	2.00	2.00

Program Articulation Matrix

Course	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
BMA0300	3	3	2	2	2	2	3	PO8	PO9	PO10	3	2
BME0300	1	1	3	PO4	3	PO6	PO7	2	PO9	2	PO11	3
BME0300	3	1	3	2	3	PO6	PO7	PO8	1	2	PO11	2
BME0300	3	3	2	2	2	3	3	PO8	PO9	PO10	PO11	2
BHU0300	3	2	PO3	PO4	PO5	3	2	2	3	PO10	3	3
BME0400	1	PO2	3	PO4	1	3	3	3	3	3	3	3
BME0400	3	3	3	3	3	PO6	2	PO8	PO9	PO10	2	1
BME0400	1	1	1	PO4	3	PO6	PO7	2	PO9	2	PO11	3
BMA0400	3	3	2	2	1	2	3	PO8	PO9	PO10	2	1
BHU0100	3	3	2	3	3	2	1	3	3	2	3	3
BME0500	3	1	3	3	1	3	PO7	3	PO9	PO10	PO11	1
BME0500	3	3	3	3	3	3	PO7	PO8	PO9	PO10	PO11	3
BME0500	3	3	2	1	3	2	3	PO8	PO9	PO10	PO11	3
BMEPE50	3	3	3	3	3	2	2	2	PO9	2	2	2
BMEPE50	3	3	3	2	1	3	2	PO8	PO9	PO10	PO11	1
BMEOE50	3	3	3	1	1	2	2	2	PO9	PO10	3	3
BMEOE50	3	3	2	3	3	PO6	1	PO8	2	3	3	2
BME0600	3	3	3	3	3	2	2	PO8	2	2	2	2
BME0600	3	3	2	3	3	2	2	PO8	PO9	PO10	PO11	3
BMEPE60	3	3	2	3	3	PO6	3	PO8	2	3	3	2
BMEPE60	1	3	2	3	2	2	PO7	3	PO9	PO10	2	3
BMEPE60	3	3	2	2	2	1	1	2	2	PO10	2	2
BMEOE60	3	3	3	3	3	2	PO7	PO8	PO9	PO10	PO11	3
BMEOE60	3	2	3	PO4	1	PO6	3	2	PO9	3	PO11	1
BME0700	2	2	3	PO4	3	PO6	PO7	3	PO9	PO10	2	3
BME0700	2	3	3	3	2	PO6	3	PO8	2	PO10	PO11	2
BMEPE70	3	3	3	3	3	2	2	2	PO9	3	3	2
BMEOE70	3	3	3	3	2	PO6	2	3	PO9	PO10	3	3
BMEOE70	3	3	2	1	3	2	2	PO8	3	PO10	PO11	2
BMEOE70	2	3	2	2	2	2	2	PO8	PO9	PO10	PO11	2
BMEPE80	3	3	3	1	3	2	3	3	PO9	PO10	PO11	3
BMEPE80	PO1	2	PO3	PO4	2	3	3	3	3	3	3	3
BMEPE80	3	PO2	2	3	3	3	PO7	2	2	PO10	PO11	2
BMEPE80	1	3	3	3	2	3	2	3	3	3	2	2
BMEOE80	PO1	PO2	PO3	PO4	3	3	3	3	3	3	3	3
BMEOE80	3	3	3	3	3	2	PO7	PO8	PO9	PO10	PO11	3

Course	PSO1	PSO2	PSO3
BHU0100	2	2	2
BHU0300	2	2	3
BMA0300	3	2	2
BMA0400	3	2	2
BME0300	2	2	2
BME0300	3	2	2
BME0300	3	3	2
BME0400	2	3	2
BME0400	3	2	2

BME0400	2	3	3
BME0500	3	2	2
BME0500	3	2	2
BME0500	2	3	3
BME0600	3	2	2
BME0600	3	2	3
BME0700	2	3	2
BME0700	2	2	2
BMEOE5(	2	2	3
BMEOE5(	2	2	3
BMEOE6(	3	3	2
BMEOE6(	2	2	2
BMEOE7(	2	2	2
BMEOE7(	2	3	3
BMEOE7(	2	2	2
BMEOE8(	2	3	3
BMEOE8(	2	2	3
BMEPE5(	2	3	2
BMEPE5(	3	2	2
BMEPE6(	2	3	3
BMEPE6(	2	2	2
BMEPE6(	3	3	2
BMEPE7(	2	2	2
BMEPE8(	2	3	3
BMEPE8(	2	2	3
BMEPE8(	2	3	2
BMEPE8(	2	2	3

3.2 Attainment of Course Outcomes (75)

All the courses offered in the program curriculum are broadly classified into 3 categories with their individual assessment methods:

1. Theory courses
2. Sessional courses
3. Project

Course outcome attainment for each type of course is discussed below.

Attainment of course outcomes for theory courses:

Course Category	Type of Assessment	Assessment Tools	Marks	Category	CO Attainment type
Theory	Direct	Assignments, Quiz tests (Formative assessments)	20	Cumulative Internal Examination (CIE)	Formative type
		Mid Semester Examination	30	Cumulative Internal Examination (CIE)	Direct CO Att. (70% weightage)
		End Semester Examination	50	Semester End Examination (SEE)	
	Indirect	Course Completion feedback			Indirect CO Att. (30% weightage)

Data Acquisition Process CO attainment of theory courses:

- For direct CO attainment, all the questions of mid-semester and end semesters are mapped with course outcomes during the preparation of the question paper.
- For the indirect CO attainment, semester-end feedbacks are collected by the department to acquire opinions about each CO from the students.
- During Covid 19, marks obtained by all the students from the online examinations are shared by the exam coordinator for CO attainment analysis.
- Final computation of course outcomes is done through spreadsheets by the concerned faculty. CO attainment information will be compiled by the course coordinators and information passed on to the School Quality Assurance Cell and Program Assessment Committee for subsequent decisions and actions.
- The calculation for attainments is performed after the declaration of end-semester examination results. All documentations related to attainments are maintained by the course coordinators.

Attainment Process of a Theory Course:

Threshold levels for direct CO Attainment	
Level= 3	$100 \geq$ Percentage attainment in each CO $\geq Threshold_1$
Level= 2	$Threshold_1 >$ Percentage attainment in each CO $\geq Threshold_2$
Level= 1	$Threshold_2 >$ Percentage attainment in each CO > 0

($Threshold_1$ =70%, $Threshold_2$=40%)

Threshold values are decided by the Board of Study and may be altered to other values depending on the complexities and hardness of questions in the Mid and End Semester Examinations. Direct CO attainment is calculated for each student as shown below

$$\text{Percentage attainment in each CO} = \frac{\text{Total marks obtained by the student corresponding to the particular CO}}{\text{Total marks allotted to questions mapped the particular CO}}$$

Attainment of each CO = Average of the levels obtained by all the students

Direct CO attainment of a course= Average of all five COs

Threshold levels for indirect CO Attainment	
Level= 3	$100 \geq$ Percentage attainment in each CO $\geq Threshold_1$
Level= 2	$Threshold_1 >$ Percentage attainment in each CO $\geq Threshold_2$
Level= 1	$Threshold_2 >$ Percentage attainment in each CO > 0

($Threshold_1$ =70%, $Threshold_2$=40%)

Attainment of each CO = Average of the levels obtained by all the students

Indirect CO attainment of a course= Average of all five COs

Final CO Attainment level= (0.7) * Direct CO Attainment + (0.3) * Indirect CO Attainment

Attainment of course outcomes for Sessional courses:

The course outcome attainment is assessed based on the student's performance in cumulative internal examination (which included continuous assessment through experimental activities/tasks) and semester-end examination. A summary of different assessment components and respective weightage is given in the table below.

Course Category	Assessment Tools	Marks	Category	CO Attainment type
Sessional	For every experiment, evaluation is to be done for corresponding Course Outcomes through the performance of students, viva, record marks	80	Cumulative Internal Examination (CIE)	Direct CO Att. (70% weightage)
	End Semester Examination (Viva/ Test / Quiz)	20	Semester End Examination (SEE)	
	Course Completion feedback			Indirect CO Att. (30% weightage)

The experimental activities and tasks are mapped to different Course Outcomes (COs) and are used to compute the class average corresponding to every CO in the course as described below: Cumulative Internal Examination: The class average corresponding to each CO is assessed as below.

Threshold levels for Attainment		
Level 3	$100 \geq$ Percentage attainment in each CO $\geq$ Threshold$_1$	Threshold$_1$ = 80% Threshold$_2$ = 60%
Level 2	Threshold$_1$ > Percentage attainment in each CO $\geq$ Threshold$_2$	
Level 1	Threshold$_2$ > Percentage attainment in each CO > 0	

(Threshold$_1$ =70%,   Threshold$_2$=40%)

Threshold values are decided by the Board of Study and may be altered to other values depending on the complexities and hardness of experiments.

Final CO Attainment level= (0.7) * Direct CO Attainment + (0.3) * Indirect CO Attainment

Attainment of course outcomes for Projects:

A summary of different assessment components and respective weightage is given in the table below.

Course Category	Assessment Tools	Marks	Category	CO Attainment type
Project	For a project done by a student, evaluation is to be done for corresponding Course Outcomes through the performance of students. This evaluation is done by the respective guide.	80	Cumulative Internal Examination (CIE)	Direct CO Att. (70% weightage)
	End Semester Examination (presentation, QnA)	20	Semester End Examination (SEE)	
	Course Completion feedback			Indirect CO Att. (30% weightage)

Final CO Attainment level= (0.7) * Direct CO Attainment + (0.3) * Indirect CO Attainment

Example of Course Outcomes (COs) Attainment of a theory course: Target CO att=1.8

First sheet (COattainmentDirect)

	Program	Btech
	Subject	XXX
	Semester	5th
	Branch	YY
	AY	2019-2020

			0-3 scale	%
Final Attainment (Direct)			1.74	0.58
Define Attainment Levels			0.6	0.3
		Levels	3	2

Average attainment of Course Outcomes -->				1.72	1.78	1.50	1.65	2.06
	Percentage Attainment			Attainment in (0-3) scale				

	Reg. No.	Name	CO1	CO2	CO3	CO4	CO5	CO1	CO2	CO3	CO4	CO5
1	1902070064	GARGI PATNAIK	0.45	0.53	0.45	0.35	0.60	2	2	2	2	2
2	1902070065	KIRTI BHUSAN SE	0.25	0.33	0.08	0.00	0.70	1	2	1	1	3
3	1902070066	SMRUTI RANJAN	0.40	0.65	0.48	0.45	0.50	2	3	2	2	2
4	1902070067	VAKADI SAI PRAT	0.08	0.55	0.38	0.55	0.65	1	2	2	2	3
5	1902070068	SIPAN PRADHAN	0.00	0.00	0.00	0.00	0.00	1	1	1	1	1
6	1902070069	JYOTIRMAYEE PA	0.45	0.45	0.30	0.10	0.80	2	2	1	1	3
7	1902070070	DISHANT SAHU	0.33	0.65	0.33	0.90	0.70	2	3	2	3	3
8	1902070071	ADITYA PATRA	0.65	0.63	0.53	0.30	0.65	3	3	2	1	3
9	1902070072	AKANKSHYA NAYA	0.33	0.40	0.43	0.50	0.85	2	2	2	2	3
10	1902070073	DEBI PRASAD PA	0.43	0.40	0.43	0.70	0.50	2	2	2	3	2
11	1902070074	SHREEPREET SAH	0.73	0.63	0.40	0.15	0.45	3	3	2	1	2
12	1902070075	SUBHASHREE DAS	0.15	0.03	0.20	0.45	0.75	1	1	1	2	3
13	1902070076	RAJESH PATNAIK	0.30	0.33	0.48	0.70	0.30	1	2	2	3	1
14	1902070077	STHITIPRAJNA DA	0.23	0.28	0.05	0.20	0.55	1	1	1	1	2
15	1902070079	M DILESWAR RA	0.18	0.48	0.23	0.35	0.20	1	2	1	2	1
16	1902070080	AMRUTA SAHU	0.50	0.50	0.43	0.70	0.40	2	2	2	3	2
17	1902070081	SUGRIV KUMAR S	0.38	0.60	0.50	0.75	0.50	2	2	2	3	2
18	1902070082	SWARNAMAYEE	0.38	0.18	0.10	0.15	0.50	2	1	1	1	2
19	1902070083	SUSHREE SIBARP	0.75	0.70	0.28	0.45	0.80	3	3	1	2	3
20	1902070084	JAGAT JEEBAN M	0.43	0.33	0.10	0.00	0.75	2	2	1	1	3
21	1902070085	SUBHAM KUMAR	0.53	0.45	0.35	0.00	0.70	2	2	2	1	3
22	1902070086	SRIYA SMRUTI SE	0.35	0.40	0.23	0.40	0.45	2	2	1	2	2
23	1902070087	SAHIL KUMAR RA	0.25	0.25	0.00	0.20	0.55	2	2	1	1	2

MT | ET | **COattainmentDirect** | COattainmentIndirect | Poattainment | Psoattainment | (+)

Second sheet (COattainmentIndirect)

	Program	Btech
	Subject	XXX
	Semester	5th
	Branch	YY
	AY	2019-2020

			0-3 scale	%
Final Attainment (Indirect)			2.60	0.87
Define Attainment Levels			0.7	0.4
		Levels	3	2

			2.79	2.77	2.32	2.42	2.68
			Attainment in (0-3) scale				

	Reg. No.	Name	CO1	CO2	CO3	CO4	CO5
1	1902070064	GARGI PATNAIK	3	3	3	3	2
2	1902070065	KIRTI BHUSAN SETHI	2	3	2	2	3
3	1902070066	SMRUTI RANJAN MUDULI	3	3	3	3	3
4	1902070067	VAKADI SAI PRATYUSH	2	3	3	3	3
5	1902070068	SIPAN PRADHAN	2	3	3	2	2
6	1902070069	JYOTIRMAYEE PATI	3	3	2	2	3
7	1902070070	DISHANT SAHU	3	3	3	3	3
8	1902070071	ADITYA PATRA	3	3	3	2	3
9	1902070072	AKANKSHYA NAYAK	3	3	3	3	3
10	1902070073	DEBI PRASAD PARIDA	3	3	3	3	3
11	1902070074	SHREEPREET SAHU	3	3	3	2	3
12	1902070075	SUBHASHREE DASH	3	2	2	3	3
13	1902070076	RAJESH PATNAIK	3	3	3	3	2
14	1902070077	STHITIPRAJNA DAS	3	2	2	2	3
15	1902070079	M DILESWAR RAO	2	3	2	3	2
16	1902070080	AMRUTA SAHU	3	3	3	3	3
17	1902070081	SUGRIV KUMAR SINGH	3	3	3	3	3
18	1902070082	SWARNAMAYEE BISWAL	3	2	2	2	3
19	1902070083	SUSHREE SIBARPITA DEY	3	3	2	3	3
20	1902070084	JAGAT JEEBAN MAHARANA	3	3	2	1	3
21	1902070085	SUBHAM KUMAR DAS	3	3	3	1	3
22	1902070086	SRIYA SMRUTI SETH	3	3	2	3	3
23	1902070087	SAHIL KUMAR BADICK	3	2	1	2	2

MT | ET | COattainmentDirect | **COattainmentIndirect** | Poattainment | Psoattainment | (+)

Ready   Accessibility: Investigate

Final CO attainment of DSP= (0.7) * Direct CO Attainment + (0.3) * Indirect CO Attainment

= (0.7) * 1.74 +(0.3) * 2.60 =**1.99** (target Attained)

3.2.2 Record the attainment of Course Outcomes of all courses with respect to set attainment levels (65)   Ir

The attainment of course outcomes for all courses with respect to set attainment levels is computed using the following steps.

1. The program though its Board of Studies recrords the attainment level for all the programs in its Board of Studies meetings.

2. Based on the attainment level, the course outcome attainment level is computed for all the courses form mid semester and end semester examinations.

3. The target is set based on the percentage of marks for achieving the attainment level 1/2/3.

4. The final attainment is a combination of attainment in both mid semester (CIE) and end semester examinations (SEE).

5. The summative assessment only are used for direct attainment computation. Formative assessments are considered to be enabling the students to perform well in CIE and SEEs and hence are implicit to CO outcome attainment.

6. The indirect attainment for Course Outcomes is measured based on survey questionairre based on CO statements though various methods such as google forms, printed questionairre or directly asking the students.

7. The final course outcome attainment is computed giving 70% weightage to direct attainment though examination and 30% weightage to indirect attainment through surveys.

3.3 Attainment of Program Outcomes and Program Specific Outcomes (75)

3.3.1 Describe assessment tools and processes used for measuring the attainment of each Program Outcome and Program Specific Outcomes (10)   Ir

The assessment of attainment of Program Outcomes and Program Specific Outcomes are done both through direct and indirect methods using the following steps.

1. From the direct and indirect attainment of COs, the final attainment of COs is obtained for each course.

2. Using the PAM row for that course, the direct attainment of Program Outcomes is obtained.

3. Various surveys are conducted for obtaining the indirect attainment of Program Outcomes, namely, Student Exit Survey, Alumni Survey and Employer Survey.

4. The final attainment is the average of the direct and indirect attainment of Program Outcomes.

5. The attainment of Program Specific Outcomes are obtained using steps similar to those of Program Outcomes.

3.3.2 Provide results of evaluation of each PO & PSO (65)   Ir

PO Attainment

Course	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
BMA03001	2.76	2.76	2.54	2.54	2.54	2.54	2.76	PO8	PO9	PO10	2.76	2.54
BME03001	2.31	2.31	2.53	PO4	2.53	PO6	PO7	2.42	PO9	2.41	PO11	2.53
BME03002	2.72	2.46	2.72	2.59	2.72	PO6	PO7	PO8	2.46	2.59	PO11	2.59
BME03003	2.75	2.75	2.51	2.51	2.52	2.72	2.72	PO8	PO9	PO10	PO11	2.51
BHU03001	2.62	2.43	PO3	PO4	PO5	2.62	2.43	2.43	2.62	PO10	2.62	2.62
BME04001	2.31	PO2	2.79	PO4	2.31	2.79	2.79	2.79	2.79	2.79	2.79	2.79
BME04002	2.81	2.81	2.81	2.81	2.81	PO6	2.62	PO8	PO9	PO10	2.62	2.45
BME04003	2.47	2.47	2.47	PO4	2.69	PO6	PO7	2.53	PO9	2.53	PO11	2.69
BMA04001	2.80	2.80	2.62	2.62	2.46	2.62	2.80	PO8	PO9	PO10	2.62	2.46
BHU01001	2.71	2.71	2.64	2.71	2.71	2.64	2.50	2.71	2.71	2.64	2.71	2.71
BME05001	2.69	2.31	2.69	2.69	2.31	2.69	PO7	2.69	PO9	PO10	PO11	2.31
BME05002	2.72	2.72	2.72	2.72	2.72	2.72	PO7	PO8	PO9	PO10	PO11	2.72
BME05003	2.74	2.74	2.59	2.41	2.74	2.59	2.74	PO8	PO9	PO10	PO11	2.74
BMEPE501	2.72	2.72	2.72	2.72	2.72	2.61	2.61	2.61	PO9	2.61	2.61	2.61
BMEPE502	2.65	2.61	2.61	2.51	2.31	2.61	2.51	PO8	PO9	PO10	PO11	2.31
BMEOE502	2.69	2.69	2.69	2.32	2.32	2.51	2.51	2.51	PO9	PO10	2.69	2.69
BMEOE503	2.70	2.70	2.5	2.70	2.70	PO6	2.41	PO8	2.5	2.70	2.70	2.5
BME06001	2.65	2.65	2.65	2.65	2.65	2.52	2.52	PO8	2.52	2.52	2.52	2.52
BME06002	2.76	2.76	2.61	2.76	2.76	2.61	2.61	PO8	PO9	PO10	PO11	2.76
BMEPE601	2.69	2.69	2.50	2.69	2.69	PO6	2.69	PO8	2.50	2.69	2.69	2.50
BMEPE602	2.41	2.73	2.60	2.73	2.60	2.60	PO7	2.73	PO9	PO10	2.41	2.73
BMEPE604	2.79	2.79	2.56	2.56	2.56	2.21	2.21	2.56	2.56	PO10	2.56	2.56
BMEOE601	2.71	2.71	2.71	2.71	2.71	2.62	PO7	PO8	PO9	PO10	PO11	2.71
BMEOE602	2.69	2.51	2.69	PO4	2.4	PO6	2.69	2.51	PO9	2.69	PO11	2.4
BME07001	2.5	2.5	2.62	PO4	2.62	PO6	PO7	2.62	PO9	PO10	2.5	2.62
BME07002	2.43	2.59	2.59	2.59	2.43	PO6	2.59	PO8	2.43	PO10	PO11	2.43
BMEPE701	2.65	2.65	2.65	2.65	2.51	2.51	2.51	2.51	PO9	2.65	2.65	2.51
BMEOE701	2.70	2.70	2.70	2.70	2.59	2.59	2.70	2.70	PO9	PO10	2.70	2.70
BMEOE702	2.51	2.69	2.51	2.51	2.51	2.51	2.51	PO8	PO9	PO10	PO11	2.51
BMEOE703	2.51	2.69	2.51	2.51	2.51	2.51	2.51	PO8	PO9	PO10	PO11	2.51
BMEPE801	2.74	2.74	2.74	2.43	2.74	2.55	2.74	2.74	PO9	PO10	PO11	2.74
BMEPE802	PO1	2.46	PO3	PO4	2.46	2.61	2.61	2.61	2.61	2.61	2.61	2.61
BMEPE804	2.76	PO2	2.53	2.76	2.76	2.76	PO7	2.53	2.53	PO10	PO11	2.53
BMEPE805	2.39	2.72	2.72	2.72	2.53	2.72	2.53	2.72	2.72	2.72	2.39	2.39
BMEOE801	PO1	PO2	PO3	PO4	2.76	2.76	2.76	2.76	2.76	2.76	2.76	2.76
BMEOE802	2.71	2.71	2.71	2.71	2.71	2.59	PO7	PO8	PO9	PO10	PO11	2.71

PO Attainment Indirect

Course	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
Exit survey	2.45	2.18	2.15	2.19	2.07	2.42	2.38	2.47	2.50	2.49	2.40	2.57
Alumni Surv	2.31	2.56	2.43	2.89	2.51	2.37	2.63	2.48	2.31	2.12	2.48	2.31
Employer S	2.12	2.43	2.31	2.72	2.51	2.18	2.29	2.71	2.45	2.36	2.31	2.63

PO Attainment Level

Course	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
InDirect Attainment	2.29	2.39	2.30	2.60	2.36	2.32	2.43	2.55	2.42	2.32	2.40	2.50

Direct Attainment	2.64	2.64	2.63	2.63	2.59	2.60	2.60	2.61	2.59	2.64	2.63	2.58

PSO Attainment

Course	PSO1	PSO2	PSO3
BHU01001	2.41	2.41	2.41
BHU03001	2.53	2.53	2.74
BMA03001	2.76	2.43	2.43
BMA04001	2.73	2.54	2.54
BME03001	2.69	2.69	2.69
BME03002	2.54	2.41	2.41
BME03003	2.57	2.57	2.43
BME04001	2.43	2.71	2.43
BME04002	2.62	2.43	2.43
BME04003	2.41	2.69	2.69
BME05001	2.69	2.43	2.43
BME05002	2.68	2.41	2.41
BME05003	2.43	2.67	2.67
BME06001	2.73	2.43	2.43
BME06002	2.73	2.45	2.73
BME07001	2.41	2.67	2.41
BME07002	2.41	2.41	2.41
BMEOE502	2.43	2.43	2.69
BMEOE503	2.44	2.44	2.67
BMEOE601	2.73	2.73	2.45
BMEOE602	2.45	2.45	2.45
BMEOE701	2.46	2.46	2.46
BMEOE702	2.46	2.67	2.67
BMEOE703	2.47	2.47	2.47
BMEOE801	2.44	2.71	2.71
BMEOE802	2.43	2.43	2.71
BMEPE501	2.42	2.69	2.42
BMEPE502	2.67	2.43	2.43
BMEPE601	2.41	2.67	2.67
BMEPE602	2.45	2.45	2.45
BMEPE604	2.71	2.71	2.45
BMEPE701	2.42	2.42	2.42
BMEPE801	2.43	2.67	2.67
BMEPE802	2.41	2.41	2.71
BMEPE804	2.43	2.69	2.43
BMEPE805	2.43	2.43	2.67

PSO Attainment Indirect

Survey	PSO1	PSO2	PSO3
Exit Survey	2.86	2.58	2.94
Alumni Survey	2.61	2.81	2.74
Employer survey	2.79	2.84	2.82

PSO Attainment Level

Course		PSO1	PSO2	PSO3
Direct Attainment		2.52	2.53	2.54
InDirect Attainment		2.75	2.74	2.83

4 STUDENTS' PERFORMANCE (100)

Table 4.1

Item (Information to be provided cumulatively for all the shifts with explicit headings, wherever applicable)	2023-24 (CAY)	2022-23 (CAYm1)	2021-22 (CAYm2)	2020-21 (CAYm3)	2019-20 (CAYm4)	2018-19 (CAYm5)	2017-18 (CAYm6)
Sanctioned intake of the program(N)	120	120	120	126	126	126	126
Total number of students admitted in first year minus number of students migrated to other programs/ institutions plus No. of students migrated to this program (N1)	152	151	113	120	114	102	106
Number of students admitted in 2nd year in the same batch via lateral entry (N2)	0	12	12	12	13	13	25
Separate division students, If applicable (N3)	0	0	0	2	1	0	11
Total number of students admitted in the programme(N1 + N2 + N3)	152	163	125	134	128	115	142

Table 4.2

Year of entry	Total No of students admitted in the program (N1 + N2 + N3)	Number of students who have successfully graduated without backlogs in any semester/ year of study (Without Backlog means no compartment or failures in any semester/ year of study)			
		I year	II year	III year	IV year
2023-24 (CAY)	152				
2022-23 (CAYm1)	163	103			
2021-22 (CAYm2)	125	71	56		
2020-21 (CAYm3)	132	110	75	70	
2019-20 (LYG)	127	83	91	76	76
2018-19 (LYGm1)	115	53	61	61	61
2017-18 (LYGm2)	131	61	55	53	53

Table 4.3

Year of entry	Total No of students admitted in the program (N1 + N2 + N3)	Number of students who have successfully graduated in stipulated period of study) [Total of with Backlog + without Backlog]			
		I year	II year	III year	IV year
2023-24 (CAY)	152				
2022-23 (CAYm1)	163	117			
2021-22 (CAYm2)	125	110	100		
2020-21 (CAYm3)	132	119	128	128	
2019-20 (LYG)	127	110	120	119	118
2018-19 (LYGm1)	115	97	105	105	105
2017-18 (LYGm2)	131	103	102	101	100

4.1 Enrolment Ratio (20)

Ir

	N (From Table 4.1)	N1 (From Table 4.1)	Enrollment Ratio [(N1/N)*100]
2023-24 (CAY)	120	152	126.67
2022-23 (CAYm1)	120	151	125.83
2021-22 (CAYm2)	120	113	94.17

Average [(ER1 + ER2 + ER3) / 3] : 115.56

Assessment : 20.00

4.2 Success Rate in the stipulated period of the program (20)

4.2.1 Success rate without backlogs in any semester / year of study (15)

Item	Latest Year of Graduation, LYG (2019-20)	Latest Year of Graduation minus 1, LYGm1 (2018-19)	Latest Year of Graduation minus 2 LYGm2 (2017-18)
X Number of students admitted in the corresponding First year + admitted in 2nd year via lateral entry and seperated division, if applicable	127.00	115.00	131.00
Y Number of students who have graduated without backlogs in the stipulated period	76.00	61.00	53.00
Success Index [SI = Y / X]	0.60	0.53	0.40

Average SI [(SI1 + SI2 + SI3) / 3] : 0.51

Assessment [15 * Average SI] : 7.65

4.2.2 Sucess rate in stipulated period (5)

Item	Latest Year of Graduation, LYG (2019-20)	Latest Year of Graduation minus 1, LYGm1 (2018-19)	Latest Year of Graduation minus 2 LYGm2 (2017-18)
X Number of students admitted in the corresponding First year + admitted in 2nd year via lateral entry and seperated division, if applicable	127.00	115.00	131.00
Y Number of students who have graduated in the stipulated period	118.00	105.00	100.00
Success Index [SI = Y / X]	0.93	0.91	0.76

Average SI[(SI1 + SI2 + SI3) / 3]: 0.87

Assessment [5 * Average SI] : 4.33

Note : If 100% students clear without any backlog then also total marks scored will be 20 as both 4.2.1 & 4.2.2 will be applicable simultaneously.

4.3 Academic Performance in Second Year (10)

Academic Performance	CAYm1 (2022-23)	CAYm2 (2021-22)	CAYm3 (2020-21)
Mean of CGPA or mean percentage of all successful students(X)	7.35	7.63	7.87
Total number of successful students (Y)	100.00	128.00	120.00
Total number of students appeared in the examination (Z)	122.00	133.00	124.00
API [X * (Y/Z)]	6.02	7.34	7.62

Average API [(AP1 + AP2 + AP3)/3] : 6.99

Assessment [AverageAPI] : 6.99

4.4 Placement, Higher Studies and Entrepreneurship (30)

Item	CAYm1(2022-23)	CAYm2(2021-22)	CAYm3(2020-21)
Total No of Final Year Students(N)	119.00	105.00	101.00
No of students placed in the companies or goverment sector(X)	116.00	88.00	98.00
No of students admitted to higher studies with valid qualifying scores(GATE or equivalent State or National Level tests, GRE, GMAT etc.) (Y)	3.00	5.00	3.00
No of students turned enterpreneur in engineering/technology (Z)	0.00	0.00	0.00
Placement Index [(X+Y+Z)/N] :	1.00	0.89	1.00

Average Placement [(P1 + P2 + P3)/3] : 0.96

Assessment [30 * Average Placement] : 28.90

Program Name : Mechanical Engg.
Assessment Year : 2022-23 (CAYm1)

S.No	Student Name	Enrollment No	Employee Name	Appointment No
1	Debi Prasad Bhanja	1902090044	Amazon Intern	Attached
2	V Ashwita	1902090072	Capgemini SE	Attached
3	Deveshi Patro	1902090095	Capgemini SE	Attached
4	Supriya Agrawal	1902090106	Capgemini SE	Attached
5	Gargi Goutami Baidyanathan	1902090109	Capgemini SE	Attached
6	Charchit Kavi Satpathy	1902090047	DELOITTE	Attached
7	Siddhartha Sankar Sahoo	1902090055	DELOITTE	Attached
8	Debasish Das	1902020047	GenC	Attached
9	Rohit Kumar Singh	1902090017	GenC	Attached
10	Pratik Behera	1902090024	GenC	Attached
11	Rudra Narayan Panigrahi	1902090053	GenC	Attached
12	Siddhartha Sankar Sahoo	1902090069	GenC	Attached
13	Rohit Kumar Shah	1902090063	GenC	Attached
14	Smruti Ranjan Satpathy	1902090128	GenC	Attached
15	Asna Sheerin	2003090003	GenC	Attached
16	Abhijit Nayak	2003090010	GenC	Attached
17	Supriya Sahu	1902090046	INCTURE	Attached
18	Pritam Pradhan	1902090013	L&T	Attached
19	Akankshya Nayak	1902090015	L&T	Attached
20	Rohan Choudhary	1902090020	L&T	Attached
21	Dinesh Chandra Dhal	1902090029	L&T	Attached
22	Satyajeet Dash	1902090045	L&T	Attached
23	Prateek Nayak	1902090002	L&T	Attached
24	Digvijay Sahoo	1902090084	L&T	Attached
25	Bibhuti Bhusan Bishi	1902090122	L&T	Attached
26	Niraj Dash	1902090112	L&T	Attached
27	Prachi Priyasa	1902090001	L&T	Attached
28	Priyanka Biswal	1902090040	L&T	Attached
29	Sichita Parija	2002090056	L&T	Attached
30	Shivanee Nath	1902090022	L&T	Attached
31	Truptimayee Panda	1902090080	L&T	Attached
32	Arup Kumar Jena	1902090025	L&T	Attached
33	Rajat Rishabh Pradhan	1902090068	L&T	Attached
34	Siddharth Suman Moharana	1902090078	L&T	Attached
35	Roshni Dash	1902090083	RELIANCE JIO MOBILITY	Attached
36	Binay Kumar Mohanta	1902090098	RELIANCE JIO MOBILITY	Attached
37	Annada Dash	1902090129	RELIANYE JIO MOBILITY	Attached
38	Mana Bikash Mishra	1902090009	MARUTI SUZUKI	Attached
39	Saswat Mohanty	1902090216	MARUTI SUZUKI	Attached
40	Deepak Kumar Behera	1902090035	MARUTI SUZUKI	Attached
41	Vasundhara Saraf	1902090036	MARUTI SUZUKI	Attached
42	Sabyasachi Nanda	1902090059	MARUTI SUZUKI	Attached
43	Biswaranjan Sahoo	1902090076	MARUTI SUZUKI	Attached
44	Bisal Rout	1902090099	MARUTI SUZUKI	Attached
45	Balgopal Biswal	1902090113	MARUTI SUZUKI	Attached
46	Smruti Ranjan Satpathy	1902090028	MARUTI SUZUKI	Attached
47	Abhisek Sahoo	2003090001	MARUTI SUZUKI	Attached
48	Manas Ranjan Sahoo	1902090092	MARUTI SUZUKI	Attached
49	Adarsh Kumar	1902090023	ADITYA BIRLA	Attached

50	Nirlipta Das	2002090023	ADITYA BIRLA	Attached
51	Aryan Duttatreya Dixit	1902090054	ADITYA BIRLA	Attached
52	Nidhi Singh	1902090066	ADITYA BIRLA	Attached
53	Swaroop Panda	1902090067	ADITYA BIRLA	Attached
54	Kintala Hitesh Kumar	1902090088	ADITYA BIRLA	Attached
55	Balgopal Biswal	2002090113	L&T	Attached
56	Kintala Hitesh Kumar	2002090088	L&T	Attached
57	Animesh Mahapatra	1902090119	ADITYA BIRLA	Attached
58	L Sirisha	1902090097	ADITYA BIRLA	Attached
59	Alok Kumar Mishra	1902090038	L&T	Attached
60	Abhisekh Sekhar	1902090011	SMS	Attached
61	Prabhu Prasad Padhy	1902090034	SMS	Attached
62	Anindit Sahu	1902090062	SMS	Attached
63	Ankita Priyadarshini	1902090086	SMS	Attached
64	Ritika Ratawa	1902090093	SMS	Attached
65	Debananda Dehury	1902090096	SMS	Attached
66	Debananda Dehury	2002090096	TCS(NINJA)	Attached
67	Arup Kumar Jena	2002090025	TCS(NINJA)	Attached
68	Nirlipta Das	2002090028	TCS(NINJA)	Attached
69	Amlan Tripathy	1902090126	TCS(NINJA)	Attached
70	Annada Dash	2002090129	TCS(NINJA)	Attached
71	Debasis Pal	1902090123	TATA AUTOCOMP	Attached
72	Amarjeet Das	1902110012	TATA AUTOCOMP	Attached
73	Sneha Pandey	1902111053	TATA AUTOCOMP	Attached
74	Bikash Dash	2105090008	TATA AUTOCOMP	Attached
75	Subhadeep Palit	2105090031	TATA AUTOCOMP	Attached
76	Sthitapragnya Baral	1804050003	TATA AUTOCOMP	Attached
77	Abhilipsa Panda	2105090016	TATA AUTOCOMP	Attached
78	Sibashakti Bahubalindra	1902020016	JSW	Attached
79	Dibyajyoti Muduli	1902090003	JSW	Attached
80	Jagannath Dash	1902090027	JSW	Attached
81	Vivekanand Barik	1902090081	JSW	Attached
82	Amlan Tripathy	2002090126	JSW	Attached
83	Saijagnyajyoti Rana	1902090037	ADANI	Attached
84	Sweta Priyadarsini	1802090103	ACMEGRADE	Attached
85	Ronalisha Pradhan	1902090089	ACMEGRADE	Attached
86	Abhishek Emil Topno	1902090107	ACMEGRADE	Attached
87	Sarthak Anshuman	1902090101	ACMEGRADE	Attached
88	Satyajit Sahu	1902090121	ADANI	Attached
89	Abhilash Mahapatra	1902090114	ADANI	Attached
90	Subham Kumar Jena	1902090111	ADANI	Attached
91	Hitesh Kumar Jena	2003090012	PREGRAD	Attached
92	Satyam Das	1902090018	LTTS	Attached
93	Prateek Kumar Bhoi	1902090090	LTTS	Attached
94	Hitesh Kumar Jena	1903090012	LTTS	Attached
95	Jyotiprakash Maharana	2003090013	LTTS	Attached
96	Chandrachuda Dev	1902090085	JSW	Attached
97	Subhasish Ratha	1902090008	SAPOORJI PALLONJI	Attached
98	Sanjay Kumar Rout	1902090125	SAPOORJI PALLONJI	Attached
99	Sarat Kumar Mahunta	2003090002	SAPOORJI PALLONJI	Attached

100	Hrishikesh Pradhan	1902090033	JK PAPER	Attached
101	Gourav Kumar Behera	1902090060	IMMENSPHERE	Attached
102	Supriya Agrawal	2002090106	Byjus BDA	Attached
103	Pravat Kumar Nath	1802090071	Byjus BDA (the learning app)	Attached
104	P Daisy	1902090105	TEGA (through nextgen)	Attached
105	Subrat Patel	1902090014	RENAULT NISSAN TECH	Attached
106	Linga Rohidas	1902090042	Shri Mahavir Alloys	Attached
107	Subhankar Panigrahi	1902090043	Shri Mahavir Alloys	Attached
108	Madhusudan Kisan	1902090074	Shri Mahavir Alloys	Attached
109	Aniket Maity	1902090117	Shri Mahavir Alloys	Attached
110	Dev Kumar Santra	2003090011	Shri Mahavir Alloys	Attached
111	Swadesh Samarpit Kuanr	1902090087	Shri Mahavir Alloys	Attached

Assessment Year : 2021-22 (CAYm2)

S.No	Student Name	Enrollment No	Employee Name	Appointment No
1	Sritam Tripathy	1802090020	DELTEOIT	Attached
2	Partha Sarathi Dash	1802090035	DELTEOIT	Attached
3	Subham Acharya	1802090057	DELTEOIT	Attached
4	Monalisha Rajguru	1802090081	DELTEOIT	Attached
5	Samikshya Mohapatra	1802090089	DELOITTE	Attached
6	Abhijeet Pradhan	1802090054	GenC Elevate (DN)	Attached
7	Nansi Upadhyaya	1802090045	GenC Select	Attached
8	Prarthana Das	1802090097	GenC Select	Attached
9	Debesh Lath	1802090021	GenC Select	Attached
10	Siddhi Pragyan Sahoo	1802090088	GenC Select	Attached
11	Kiran Kumar Mahapatra	1802090069	GenC Select	Attached
12	Sasmita Panda	1802090060	GenC Select	Attached
13	Piyush Ranjan Sahu	1802090001	GenC Select	Attached
14	Asish Kumar Swain	1802090011	GenC Select	Attached
15	Aryashree Anshuman	1802090041	GenC Select	Attached
16	Niranjan Panda	1802090018	GenC Select	Attached
17	Om Prasad Sethi	1802090091	GenC Select	Attached
18	Chandan Majhi	1802090126	GenC Select	Attached
19	Aloknath Nayak	1802090047	GenC Select	Attached
20	Sudip Kumar Chand	1802100019	GenC Select	Attached
21	Nansi Upadhyaya	1802090145	WIPRO	Attached
22	Prarthana Das	1802090197	WIPRO	Attached
23	Pratyasha Padhi	1802090196	WIPRO	Attached
24	Swayasi Sthitapragyan	1802090033	TATA ELECTRONICS	Attached
25	Jennifer Akhtar	1802090093	TATA ELECTRONICS	Attached
26	Sanghamitra Nayak	1802090084	TATA ELECTRONICS	Attached
27	Sasmita Panda	1802090160	TATA ELECTRONICS	Attached
28	Pratyasha Padhi	1802090096	TATA ELECTRONICS	Attached
29	Kumuda Ranjan Pati	1802090024	INFOSYS	Attached
30	Aloknath Nayak	1802090147	INFOSYS	Attached
31	Soumya Siddharth	1802090015	L&T	Attached
32	Bibhu Prasad Bhanja	1802090029	L&T	Attached
33	Manjil Mithilesh Parida	1802090019	LTTS	Attached
34	Ayan Banerjee	1802090023	LTTS	Attached
35	Pritiranjan Mohalik	1802090082	LTTS	Attached
36	Bibek Biswajit Sahoo	1802090101	LTTS	Attached
37	Sameeksha Jal	1802090102	LTTS	Attached
38	Shailesh Patra	1802090124	BYJUS	Attached
39	Shubhashree Khuntia	1802090010	BYJUS	Attached
40	Bhairab Prasad Kantu	1802090005	L&T	Attached
41	Biswajeet Mahapatra	1802090039	L&T	Attached
42	Sarmistha Mahapatra	1802090078	L&T	Attached
43	Debashis Pradhan	1802090007	L&T	Attached
44	Sudhanshu Sekhar Sahu	1802090034	L&T	Attached
45	Nansi Upadhyaya	1802091045	ADITYABIRLA GROUP	Attached
46	Subhasis Panda	1802090053	ADITYABIRLA GROUP	Attached
47	Sarthak Sekhar Behera	1802090064	ADITYABIRLA GROUP	Attached
48	Alpana Acharya	1802090085	ADITYABIRLA GROUP	Attached
49	Manish Rajak	1802090095	ADITYABIRLA GROUP	Attached

50	Ardhendu Sekhar Tripathy	1802090004	VEDANTA	Attached
51	Somyaranjan Rout	1802090012	VEDANTA	Attached
52	Mahendra Tanaya Sahu	1802090017	VEDANTA	Attached
53	Abhinash Singh	1802090038	VEDANTA	Attached
54	Ritesh Nanda	1802090043	VEDANTA	Attached
55	Anupam Das	1802090049	VEDANTA	Attached
56	Jay Kishan Agrawal	1802090055	VEDANTA	Attached
57	Subham Kumar Parhi	1802090059	VEDANTA	Attached
58	Sima Patel	1802090061	VEDANTA	Attached
59	Sweta Prakash Mishra	1802090077	VEDANTA	Attached
60	Anmol Biswal	1802090080	VEDANTA	Attached
61	Sonali Raut	1802090083	VEDANTA	Attached
62	Subham Kar	1802090099	VEDANTA	Attached
63	P Sandeep Chandan	1802090121	SMS india	Attached
64	Manas Kumar Dalai	1903090005	SMS india	Attached
65	Jyotiprakash Sahoo	1702090038	SMS india	Attached
66	Jyotishankar Nayak	1802090094	MINDTREE	Attached
67	Jagat Kumar Sahoo	1802090040	MINDTREE	Attached
68	Nikhilesh Pandab	1802090030	ARCELOR MITTAL	Attached
69	Kedarnath Sahu	1802090032	ARCELOR MITTAL	Attached
70	Soumya Ranjan Sutar	1802090042	ARCELOR MITTAL	Attached
71	Anurag Samal	1802090062	ARCELOR MITTAL	Attached
72	Sudip Kumar Chand	1802190019	MARUTI SUZUKI	Attached
73	Ritesh Nanda	1802090143	WIPRO	Attached
74	Adyashree Nayak	1903090006	JSW	Attached
75	Sujit Kumar Mohanta	1903090009	SHYAM METALLICS	Attached
76	Birendra Padhi	1903090007	SLM METAL	Attached
77	Nikhilesh Pandab	1802090130	JSPL	Attached
78	Anurag Samal	1802090162	JSPL	Attached
79	Susmita Sahoo	1802090048	SKOLAR	Attached
80	Biswajeet Pattanaik	1802090122	SKOLAR	Attached
81	Swaroop Sahoo	1702090112	AQUAGREEN	Attached
82	Naitik Tripathy	1802090070	AQUAGREEN	Attached
83	Biswajeet Pattanaik	1802090022	AIRLIQUID	Attached
84	Gouri Sankar Ghosh	1802090051	INFOSYS	Attached
85	Piyush Ranjan Sah	1802690001	JSL	Attached
86	Niranjan Panda	1802690018	JSL	Attached
87	Naitik Tripathy	1802690070	JSL	Attached
88	Shashanka Shovan Patel	1802690072	JSL	Attached

Assessment Year : 2020-21 (CAYm3)

S.No	Student Name	Enrollment No	Employee Name	Appointment No
1	Disha Satapathy	1702090029	ACCENTURE	Attached
2	Prayag Raj Mishra	1702090067	ACCENTURE	Attached
3	Swadhin Mohanty	1702090109	ACCENTURE	Attached
4	Swagat Samal	1702090110	ACCENTURE	Attached
5	Vidisha Parida	1702090120	ACCENTURE	Attached
6	T Tejaswini	1702090116	BYJUS	Attached
7	Kamal Kumar Nayak	1702020027	COGNIZANT	Attached
8	Aditya Ranjan Praharaj	1702090006	COGNIZANT	Attached
9	Anubrat Padhee	1702090011	COGNIZANT	Attached
10	Chinmay Jhunjhunwala	1702090025	COGNIZANT	Attached
11	Monisa kumari Dash	1702090056	COGNIZANT	Attached
12	Payal Pratiksha	1702090062	COGNIZANT	Attached
13	Pratik Pankaj Pattanayak	1702090065	COGNIZANT	Attached
14	Pratik Sarangi	1702090066	COGNIZANT	Attached
15	Rupali Rout	1702090076	COGNIZANT	Attached
16	Saswati Panda	1702090079	COGNIZANT	Attached
17	Siddharth Mohapatra	1702090092	COGNIZANT	Attached
18	Soumyadeep Das	1702090099	COGNIZANT	Attached
19	Sourav Kumar Sarangi	1702090100	COGNIZANT	Attached
20	Sthitapragyan Rath	1702090101	COGNIZANT	Attached
21	Tekchand Sahu	1702090119	COGNIZANT	Attached
22	Ansal Dash	1803090004	COGNIZANT	Attached
23	Debanand Mahanand	1702090027	COGNIZANT	Attached
24	Siddharth Debata	1702090091	COGNIZANT	Attached
25	Disha Satapathy	1702190029	COGNIZANT	Attached
26	Sambhav Jain	1702050072	COGNIZANT	Attached
27	Sambhav Jain	1702150072	INFOSYS	Attached
28	Abhishek Hota	1702090003	INFOSYS	Attached
29	Pratik Sarangi	1702190066	INFOSYS	Attached
30	Prayag Raj Mishra	1702190067	INFOSYS	Attached
31	Rupali Rout	1702190076	INFOSYS	Attached
32	Siddharth Mohapatra	1702190092	INFOSYS	Attached
33	Sonam Naik	1702090097	INFOSYS	Attached
34	Sourav Kumar Sarangi	1702190100	INFOSYS	Attached
35	Tekchand Sahu	1702190119	INFOSYS	Attached
36	Pratik Pankaj Pattanayak	1702190065	L&T	Attached
37	Manmohan Mahapatra	1702090054	L&T	Attached
38	Siddharth Bibhudutta Parida	1702090090	L&T	Attached
39	Alisha Sahoo	1702090007	L&T	Attached
40	Saswati Panda	1702190079	L&T	Attached
41	Swayam Sarit satpathy	1702050113	TATA STEEL BSL PPO	Attached
42	Aadyasha Pattnaik	1702090001	TATA STEEL BSL PPO	Attached
43	SOURAV KUMAR SARANGI	1702290100	TATA STEEL BSL PPO	Attached
44	Anubrat Padhee	1702190011	TATA STEEL BSL PPO	Attached
45	Arka Chatterjee	1702090013	TATA STEEL BSL PPO	Attached
46	Sannat Kumar Panda	1702110019	TATA STEEL BSL PPO	Attached
47	Sampurna Sahoo	1702090077	TATA STEEL BSL PPO	Attached
48	Soumya Subhasmita Malla	1702090098	TATA STEEL BSL PPO	Attached
49	Anubrat Padhee	1702290011	TCS	Attached

50	Payal Pratiksha	1702590062	TCS	Attached
51	Pratik Pankaj Pattanayak	1702590065	TCS	Attached
52	Pratik Sarangi	1702590066	TCS	Attached
53	Soumyadeep Das	1702590099	TCS	Attached
54	STHITAPRAGYAN RATH	1702590101	TCS	Attached
55	Disha Satapathy	1702590029	TCS	Attached
56	Rupali Rout	1702590076	TCS	Attached
57	Sonam Naik	1702590097	TCS	Attached
58	Chandan Kumar Mishra	1702090121	TCS	Attached
59	Joykrishna Samal	1702090123	TCS	Attached
60	Santanu Tripathy	1702090078	TCS	Attached
61	Shishira Kanta Jena	1702090084	VEDANTA	Attached
62	Antara Mohapatra	1702090010	VEDANTA	Attached
63	Vidisha Parida	1702590120	TATA ELECTRONICS	Attached
64	MENAKA BARAL	1702090055	TATA ELECTRONICS	Attached
65	BISWAJIT SAHU	1702090022	ACCENTURE	Attached
66	Prabudh Dixit	1702090063	ACCENTURE	Attached
67	Rahul Sharma	1702090071	ACCENTURE	Attached
68	Shriya Salini	1702090087	ACCENTURE	Attached
69	Roshan Kumar Gupta	1702590075	ACCENTURE	Attached
70	Swagat Samal	1702590110	JSW	Attached
71	SUBHASHISH NAYAK	1702090103	IBM (SAP)	Attached
72	Bijay Bhaskar Hota	1702110007	COGNIZANT (SAP)	Attached
73	SUBHASHISH NAYAK	1702490103	COGNIZANT (SAP)	Attached
74	PRIYANSHU KANUNGO	1702090070	COGNIZANT (SAP)	Attached
75	PREETI MOHAN SAHU	1702090068	Intelibim	Attached
76	Deviprasanna Ssthy	1602090043	Intelibim	Attached
77	Kartikeswar sahoo	1702090042	BYJUS	Attached
78	Ram Kripa Sha	1803090011	ACCENTURE	Attached
79	Ramakrushna Sahu	1702030056	JSPL	Attached
80	Subrat Samantaraya	1702090105	JSPL	Attached
81	SWATI PRIYADARSHANI ROUT	1702090114	JSPL	Attached
82	Rajesh Kumar Behera	1702090073	JSPL	Attached
83	Kajal Swain	1702090040	JSPL	Attached
84	MANAS RANJAN BADATYA	1702090048	JSPL	Attached
85	Millan Kumar Sahoo	1702100030	JSPL	Attached
86	Saijeet Rath	1702050071	JSPL	Attached
87	Gyana Ranjan Sahoo	1702090122	JSPL	Attached
88	Soumya Satwika Parida	1803090024	JSPL	Attached
89	Somasish Pradhan	1702090096	JSPL	Attached
90	Iswarchandra Dehury	1803090001	JSPL	Attached
91	Soumya Sucharita Nayak	1702090126	JSPL	Attached
92	Swadhin Mohanty	1702590109	JSPL	Attached
93	Subhashish Nayak	1702590103	JSPL	Attached
94	Pallavi Das	1702090061	JSPL	Attached
95	Payal Pratiksha	1702990062	ACCENTURE	Attached
96	Ashish Kumar Mohanta	1702090015	PRADAN	Attached
97	Durga Madhab Panigrahy	1702030029	Shri Mahavir ferro alloys	Attached
98	Shubham Sarangi	1702090088	Shri Mahavir ferro alloys	Attached
99	Manish Kumar Pati	1702090051	Shri Mahavir ferro alloys	Attached

100	Chandan Kumar Seth	1702090024	Trisys	Attached
101	Ipsita Tripathy	1702090033	VEDANTA	Attached
102	Snehal Saurav	1702090094	VEDANTA	Attached

4.5 Professional Activities (20)

4.5.1 Professional societies/chapters and organizing engineering events (5)

American Society of Mechanical engineers (ASME) Student Chapter

1.Secured 5th rank among 120 teams in Innovation, Design and Entrepreneurship Competition at IIT Guwahati from 22nd to 26th June 2023

2. Became 2nd runners up in Student Design competition (ASME EFx) held on April 1st & 2nd 2023.

3.Students participated in event Live Design Hackathon and won it in 2021 held during 3-5th April, 2022 and scored 4th position.

4.4.2 Publication of technical magazines, newsletters, etc. (5)

The technical magagine/news letter of the Mechanical Engineering Department is published every year mentioning the acheivements related to students.

4.4.3 Participation in inter-institute events by students of the program of study (10)

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ASME VSSUT

The ASME Club, an acronym for the American Society of Mechanical Engineers, stands as a dynamic intersection for mechanical engineering fanatics committed to foste collaboration and innovation, the club serves as a platform for students and professionals alike to connect and thrive. Through regular meetings, workshops, and eve develops an environment where members can share opinions, engage in projects, and create everlasting connections. Emphasizing professional development, the clu insights through guest lectures, seminars, and industry visits, assuring constituents stay alongside the latest advancements in mechanical engineering. The ASME Club's to practical learning, offering hands-on experience through workshops and projects. Participation in engineering contests showcases the mastery and skills of its fellows enhancing their problem-solving capacities. Beyond its internal focus, the ASME Club actively contributes to the community by organizing outreach programs to promote inspiring the next era of engineers, the club plays a vital role in shaping the future of the field. In essence, the ASME Club is a vibrant community that not only nurtu constituents in mechanical engineering but also contributes to the broader societal advancement of science and technology.

SMART INDIA HACKATHON

Veer Surendra Sai University of Technology student cell of ASME is an active technical society with numerous achievements. During the previous semester, the Smart I organized at the Veer Surendra Sai University of Technology. In that competition, 5 groups of students from the ASME STUDENT SECTION of VSSUT participated an selected in the preliminary round. One group (Team ANUSANDHAN) was selected for the final round and participated in the SIH organized in Hyderabad. All the five proj and extraordinary. The team ANUSANDHAN led by Jyoti Ranjan Sahoo addressed the problem statement- underwater visualization of cultural and historical struc Mahabalipuram, and Ram Setu under the theme Heritage and Culture. A remotely operated underwater vehicle was proposed to capture the footage of archaeolog WELLNESS WORDSMITHS led by K. Anish worked under the theme of review websites for medical students and proposed their solution to formulate a standard m medical students and introduced book evaluation criteria, a database of medical books, user ratings and reviews, and search and comparison. The team MOISTURE SMA leadership of Kunima Das worked under the theme WATER CONSERVATION FOR A BETTER TOMORROW and proposed automatic regulation of valves for the relea based upon soil moisture availability by using artificial intelligence, in a piped and micro irrigation network of irrigation system, to reduce water waste, improve crop yield improves crop quality and increase farm profitability.

The team BLAZE N' LIGHTS chose SMART AUTOMATION and proposed an AUTOMATED PUBLIC LIGHTNING SYSTEM under the team leader Saroj Kumar Patro efficiency, reduce cost, detect damaged lights, and put an environmental impact by reducing energy consumption. The team HIGHFLYER VEERS led by DHRITISH KUM/ to develop a small- scale wind energy device and started with rotary kite turbines as they are more efficient, cost- effective, and unconventional wind turbines, with che construction rates. It will help in revolutionizing the method of tapping sustainable energy. The team WALL-E which was by SUCHARITA PRADHAN worked on the resear of a smart glass cleaning robot that can climb up the walls in a very convenient manner, it can also carry liquid cleaners. It could be very helpful in developing cities th infrastructures which makes it difficult and dangerous to clean by manpower.

ASME E-FEST

Explore the heartbeat of the digital terrain at Digital E-Fests. Immerse yourself in the latest hiring and tech trends, gaining invaluable insights from seasoned profess gatherings transcend ancestral boundaries, offering a virtual platform to navigate your engineering aspirations. Stay ahead of industry developments practising experts knowledge, providing a compass for your career path. Digital E-Fest Careers is your compass, addressing career anxiety with precision. Whether you're charting development, electrical engineering, or any other field, seasoned mentors guide you toward a glorious destination. Beyond technical prowess, master the art of soft skills Engage with experienced hiring managers and trainers to polish your interview finesse. Digital E-Fests are not just events but catalysts propelling you toward professiona E-Fests are annual events organized by the American Society of Mechanical Engineers (ASME). They are global engineering festivals for college students. These festi competitions, Skill-building Workshops, and network opportunities for engineering Students. E-Fests aim to inspire innovation, foster collaboration and enhance tec participants. The exciting competitions are design robots, race 3D- Printed Cars i.e, HPVC and Present research. The events include Keynote Speakers, technical s development sessions. There are two formats i.e. participate in E-Fest Digital, a virtual event, or ASME EFX, smaller in-person events hosted by local ASME Sec Contributes to the Professional development of aspiring engineers by offering a dynamic environment for learning and Connecting with industry professionals.

ELECTRIC HUMAN-POWERED VEHICLE

The E-Human Powered Vehicle Challenge, or E-HPVC, is a thrilling competition that pushes the limits of environmentally friendly transportation. Participants design and b vehicles integrated with electric technology, focusing on innovation and efficiency. This challenge encourages creativity in engineering, combining human effort with cu systems to create environmentally friendly and energy-efficient vehicles. Teams compete in a friendly yet competitive atmosphere, showcasing advancements in green tr Human Powered Vehicle Challenge not only challenges engineering prowess but also promotes sustainable solutions, fostering a community dedicated to shaping the f mobility.

STUDENT DESIGN COMPETITION

The 2024 Student Design Competition (SDC) Presents the challenges to design and build a remote-controlled robot to conquer a 9-hole mind golf course. In this Project, the remote-controlled robot within a 50 cm Cube. Navigate a 9-hole Course in 10 minutes, conquering obstacles with up to 5 strokes each. The robot navigates betwee itself for each shot. Also remember that rechargeable batteries, proper design, and bonus points for pre-comp videos showcasing that robot's genius. The spirit of the gar and fair play reigns supreme. The goal is to build a robot that plays mini-golf autonomously and skillfully.

IAM3D DRONE

ASME is currently working on several projects and extending the field of research in several domains including electronics, structural, and programming. These are the n practical knowledge and experiencing teamwork, management, and manufacturing processes. One such important and exciting project that ASME will work on is I AM 3D is both interesting and challenging as well. Our motive is to make a drone that can be used in several sectors and can help in reducing human efforts. It will have severai as a wireless camera system, highly efficient propellers, and many more. The entire designing, circuiting, and drone programming will be done by students and the parts printers. This programmable drone can be used in several activities such as small delivery of products, aerial image analysis, and video making. The main objective beh learn designing, circuiting, 3D printing, and extended programming and carry out vast research on these topics, as well as search for solutions to several problems that c drone.

5 FACULTY INFORMATION AND CONTRIBUTIONS (200)   Tot

Sr. No	Name	PAN No.	University Degree	Date of Receiving Degree	Area of Specialization	Research Paper Publications	Ph.D Guidance	Faculty receiving Ph.D during the assessment year	Current Designation	Date (Designated as Prof / Assoc. Prof.)	Initial Date of Joining	Asso Type
1	J.Rana	ABNPR4633A	ME/M. Tech and PhD	12/02/2001	Production Engineering	7	2	4	Professor	28/01/2009	03/07/1997	Regu
2	P.R.Dash	ACFPD9666A	ME/M. Tech and PhD	29/01/2000	Machine Design & Analysis	10	3	2	Professor	11/01/2010	11/01/2002	Regu
3	J.R.Mohanty	ACYPM6646G	ME/M. Tech and PhD	17/01/2011	Machine Design & Analysis	14	2	4	Professor	04/09/2017	08/11/2010	Regu
4	Prof. S. K. Sarangi	BJTPS2137P	ME/M. Tech and PhD	30/09/2006	Production Engineering	7	2	3	Professor	28/01/2017	24/01/2006	Regu
5	Dr. S. Panda	AQGPP6886R	ME/M. Tech and PhD	12/05/2012	Machine Design and Analysis	14	2	3	Associate Professor	05/10/2016	01/03/2006	Regu
6	Dr. C. R. Deo	AGJPD3041P	ME/M. Tech and PhD	15/01/2011	Machine Design and Analysis	4	0	4	Associate Professor	05/10/2016	10/02/2016	Regu
7	Dr. P. Dash	AWIPD2748L	ME/M. Tech and PhD	31/12/2009	Machine Design and Analysis	6	2	0	Associate Professor	05/10/2016	22/06/2013	Regu
8	Dr. S. R. Pattnaik	BDAPP6914J	ME/M. Tech and PhD	27/10/2014	Production Engineering	11	1	3	Associate Professor	09/09/2017	09/06/2014	Regu
9	Dr. P. C. Mishra	BJOPM7324K	ME/M. Tech and PhD	04/03/2009	Machine Design and Analysis	18	02	0	Associate Professor	21/09/2017	21/09/2017	Regu
10	Dr. A. Mohanty	AFVPM1477M	ME/M. Tech and PhD	16/01/2019	Thermal Engineering	9	0	2	Associate Professor	16/01/2019	27/01/2006	Regu
11	Dr. P. Patro	AUJPP9736J	ME/M. Tech and PhD	26/07/2014	Thermal Engineering	9	1	4	Assistant Professor		16/02/2016	Regu
12	Dr. H. Barik	BLVPB0071K	ME/M. Tech and PhD	20/09/2007	Thermal Engineering	1	0	2	Associate Professor	17/02/2021	17/02/2016	Regu
13	Dr. S. S. Naik	AMRPN9434E	ME/M. Tech and PhD	24/02/2023	Production Engineering	0	0	0	Assistant Professor		05/06/2013	Regu
14	Mr. D. Tripathy	AGZPT5515A	M.E/M.Tech	24/07/2010	Machine Design and Analysis	0	0	0	Assistant Professor		01/07/2013	Regu
15	Dr. P. K. Jena	ADWPJ4159Q	ME/M. Tech and PhD	20/01/2018	Thermal Engineering	6	0	2	Assistant Professor		22/08/2013	Regu
16	Dr. S. Mishra	ASTPM6437E	ME/M. Tech and PhD	18/01/2014	Production Engineering	3	0	1	Assistant Professor		02/06/2014	Regu
17	Mrs J. Dehury	AYJPD5716B	M.E/M.Tech	18/01/2014	Production Engineering	6	0	0	Assistant Professor		02/06/2014	Regu
18	Dr. D. Mishra	AWGPM1339A	ME/M. Tech and PhD	17/01/2015	Thermal Engineering	6	0	2	Assistant Professor		04/06/2014	Regu
19	Dr. P. P. Mohanty	ASXPP9749E	ME/M. Tech and PhD	16/01/2016	Production Engineering	5	1	2	Assistant Professor		04/06/2014	Regu
20	Dr. M. K. Sutar	CNLPS5359E	ME/M. Tech and PhD	15/05/2015	Machine Design and Analysis	11	0	2	Assistant Professor		25/07/2014	Regu
21	Dr. M. Pradhan	CJIPP8137L	ME/M. Tech and PhD	27/10/2018	Machine Design and Analysis	7	0	2	Assistant Professor		19/05/2015	Regu
22	Mr. L. Das	APHPD6974Q	M.E/M.Tech	30/05/2012	Machine Design and Analysis	4	0	0	Assistant Professor		18/10/2016	Regu
23	Mr. S. S. Dalai	AMEPD6714G	M.E/M.Tech	10/06/2014	Machine Design and Analysis	0	0	0	Assistant Professor		25/10/2016	Regu

24	Dr. P. T. R. Swain	CZEPS7192C	ME/M. Tech and PhD	30/01/2018	Thermal Engineering	14	0	2	Assistant Professor		04/09/2017	Regu
25	Dr. S. K. Sahu	CGAPS4983A	ME/M. Tech and PhD	06/12/2019	Production Engineering	2	0	3	Assistant Professor		06/09/2017	Regu
26	Dr. K. K. Ekka	AAQPE5883K	ME/M. Tech and PhD	16/06/2016	Machine Design and Analysis	3	0	3	Assistant Professor		16/09/2017	Regu
27	Dr. P. Mishra	BEGPM5828F	ME/M. Tech and PhD	12/06/2012	Production Engineering	10	3	3	Associate Professor	05/10/2016	12/10/2010	Regu
28	Mr. J. B. Lakra	AMYPL3921F	M.E/M.Tech	20/06/2013	Machine Design and Analysis	0	0	0	Assistant Professor		20/06/2014	Regu
29	Dr. P. K. Pradhan	AQMPP0754G	ME/M. Tech and PhD	14/02/2014	Machine Design and Analysis	9	3	1	Associate Professor	05/10/2016	30/01/2006	Regu

5.1 Student-Faculty Ratio (SFR) (20)

UG

No. of UG Programs in the Department 1

B Tech in Mechanical Engineering					
Year of Study	CAY		CAYm1		CAYm2	
	(2023-24)		(2022-23)		(2021-22)	
	Sanction Intake	Actual admitted through lateral entry students	Sanction Intake	Actual admitted through lateral entry students	Sanction Intake	Actual admitted through lateral entry students
2nd Year	120	12	120	12	120	12
3rd Year	120	12	120	12	120	12
4th Year	120	12	120	12	120	12
Sub-Total	**360**	**36**	**360**	**36**	**360**	**36**
Total	**396**		**396**		**396**	
Grand Total	396		396		396	

PG

No. of PG Programs in the Department 3

M Tech in Mechanical Engineering (Heat Power Engineering)			
Year of Study	CAY(2023-24)	CAYm1(2022-23)	CAYm2 (2021-22)
	Sanction Intake	Sanction Intake	Sanction Intake
1st Year	18	18	18
2nd Year	18	18	18
Total	**36**	**36**	**36**

M Tech in Mechanical Engineering (Machine Design and Analysis)			
Year of Study	CAY(2023-24)	CAYm1(2022-23)	CAYm2 (2021-22)
	Sanction Intake	Sanction Intake	Sanction Intake
1st Year	18	18	18
2nd Year	18	18	18
Total	**36**	**36**	**36**

M Tech in Mechanical Engineering (Production Engineering)			
Year of Study	CAY(2023-24)	CAYm1(2022-23)	CAYm2 (2021-22)
	Sanction Intake	Sanction Intake	Sanction Intake
1st Year	18	18	18
2nd Year	18	18	18
Total	**36**	**36**	**36**
Grand Total	108	108	108

SFR

No. of UG Programs in the Department 1

No. of PG Programs in the Department 3

Description	CAY(2023-24)		CAYm1 (2022-23)		CAYm2 (2021-22)	
Total No. of Students in the Department(S)	504	Sum total of all (UG+PG) students	504	Sum total of all (UG+PG) students	504	Sum total of al (UG+PG) students
No. of Faculty in the Department(F)	27	F1	27	F2	27	F3
Student Faculty Ratio(SFR)	18.67	SFR1=S1/F1	18.67	SFR2=S2/F2	18.67	SFR3=S3/F3
Average SFR	18.67	1	SFR=(SFR1+SFR2+SFR3)/3			
F=Total Number of Faculty Members in the Department (excluding first year faculty)						

Note: All the faculty whether regular or contractual (except Part-Time), will be considered. The contractual faculty (doing away with the terminology of visiting/adjunct faculty, whatsoever) who have taught for 2 consecutive semesters in the corresponding academic year on full time basis shall be considered for the purpose of calculation in the Faculty Student Ratio. However, following will be ensured in case of contractual faculty:

1. Shall have the AICTE prescribed qualifications and experience.

2. Shall be appointed on full time basis and worked for consecutive two semesters during the particular academic year under consideration.

3. Should have gone through an appropriate process of selection and the records of the same shall be made available to the visiting team during NBA visit

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(2023-24)	27	0
CAYm1(2022-23)	27	0
CAYm2(2021-22)	27	0

Average SFR for three assessment years :   18.67

Assessment SFR :   16

5.2 Faculty Cadre Proportion (20)

Ir

Year	Professors		Associate Professors		Assistant Professors	
	Required F1	Available	Required F2	Available	Required F3	Available
CAY(2023-24)	2.00	4.00	5.00	9.00	16.00	14.00
CAYm1(2022-23)	2.00	4.00	5.00	9.00	16.00	14.00
CAYm2(2021-22)	2.00	4.00	5.00	9.00	16.00	14.00
Average Numbers	2.00	4.00	5.00	9.00	16.00	14.00

Cadre Ratio Marks [(AF1 / RF1) + [(AF2 / RF2) * 0.6] + [(AF3 / RF3) * 0.4]] * 10 :   20.00

5.3 Faculty Qualification (20)

Ir

	X	Y	F	FQ = 2 x [(10X + 4Y) / F)]
2023-24(CAY)	24	3	25.00	20.16
2022-23(CAYm1)	23	4	25.00	19.68
2021-22(CAYm2)	23	4	25.00	19.68

Average Assessment :   19.84

5.4 Faculty Retention (10)

Description	2022-23 (CAYm1)	2023-24 (CAY)
No of Faculty Retained	27	27
Total No of Faculty	25	25
% of Faculty Retained	108	108

Average :   108.00

Assessment Marks :   10.00

5.5 Faculty competencies in correlation to Program Specific Criteria (10)

Sl. No.	Name	Area of Specialization	No. of Publication	Course Development
1.	Prof. J. Rana	Electro Discharge Machining (EDM), Non-traditional machining, Laser Drilling, Laser transformation hardening	7	Entrepreneurship, Industrial Engineering and Operation Research, Metal Casting and Welding, Metrology Quality Control and Reliability.
2.	Prof. P. R. Dash	Machine Design and Vibration	10	Engineering Mechanics, Mechanics of Materials, Advanced Mechanics of Solids, Machine Design, Vibration, Machine Dynamics, Mechanical Measurement and Control
3.	Prof. J. R. Mohanty	Machine Design; Fatigue & Fracture; Composite Material	14	Machine Design; Mechanical engineering measurement & control; Advanced mechanics of solids; Machine dynamics
4.	Dr. B. B. Pani	ProductionEngineering	4	Mechanics of Materials, Advanced Manufacturing Technology, Manufacturing Science and Technology
5.	Dr. S. K. Sarangi	CVD Diamond Coating, High Speed Machining, Joining metal-Ceramics	7	Robotics and Flexible Manufacturing , Manufacturing by Shaping and Joining, Engineering Mechanics, Mechanics of Materials, Advanced Manufacturing Technology, Mechanical Measurement and Control, Product Design and Production Tooling, Introduction to Nanotechnology,
6.	Dr. S. Panda	Robot Mechanism, Condition Monitoring, Bearing Dynamics	14	Mechanics, Tribology, Machine Design, AMOS, NTM, Metal Forming
7.	Dr. P. K. Pradhan	Machine Design, Condition Monitoring	9	Engineering Mechanics, Machine Design
8.	Dr. C. R. Deo	Machine Design and Analysis	4	Engineering Mechanics, Mechanics of Solid, Advanced Mechanics of Solid, Machine Design, Machine Dynamics, Mechanical Vibration, Composite Material
9.	Dr. P. Mishra	Composite materials: Low cost composite from waste material, Polymer Nano composites, Bio composites, Ceramic Polymer composites	10	Manufacturing Science & Technology-I, Industrial Engineering & Operation Research, Advanced Manufacturing Process, Materials Engineering

10.	Dr. P. Dash	Machine design, Solid Mechanics	6	Engg. Mechanics; Mechanics of Solids; Machine Dynamics-I and II;Mechanical Vibration;Advanced Mechanics of Solids; Finite Element Method.
11.	Dr. S. R. Pattnaik	Investment Casting, Sand Casting, Advanced Machining Process, Composite Materials	11	Manufacturing Science & Technology-II, Metrology & Quality Control, Production & Operation Management,Engineering Mechanics
12.	Dr. P. C. Mishra	Machine Design, Engine Tribology, Emission, Friction Modeling	18	Machine Design, Tribology, Contact Mechanics and Tribology
13.	Dr. A. Mohanty	Natural convection, solidifiaction, Level set method, Heat sink design, Thermal management of EV Battery, Micro channel heat sinks	9	Fluid Mechanics, Fluid dynamics and Hydraulic Machines, Thermodynamics, Heat Transfer
14.	Dr. P. Patro	Conjugate heat transfer, Compact heat exchangers, Multi-phase flows, Jet Impingement cooling, Nanofluid flow	9	Fluid Mechanics, Thermodynamics, Fluid dynamics and hydraulic machines, Computational Fluid Dynamics, Heat Transfer
15.	Dr. H. Barik	Thermal Engineering ,Gas dynamics, Computational Fluid Dynamics	1	Gas Dynamics, Fluid Mechanics, Thermodynamics, Power Plant Engineering, Computational Fluid Dynamics
16.	Mrs. S. S. Naik	Non-traditional manufacturing process Basically EDM, Wire-EDM, Laser Beam Machining, Abrasive Jet Machining, Resistance Spot welding, Oxyacetylene gas welding	0	Operation management,Industrial management control system
17.	Mr. D. Tripathy	Machine Design, Tribology	0	Engineering Mechanics, Machine Dynamics, Fundamentals of Fluid Mechanics, Fluid Mechanics and Fluid power Engineering, Advance Mechanics of Solids
18.	Dr. P. K. Jena	Thermal Engineering, Soft Computing	6	Engineering Thermodynamic, Power Plant Engineering, heat Transfer, Fluid Mechanics
19.	Dr. S. Mishra	Industrial and Production Engg.	3	Production and operation Management, Metrology Quality Control and Reliability, Introduction to physical Metallurgy, Manufacturing Science and Technology
20.	Mrs J. Dehury	Production Engineering, Composite Material	6	Mechanics, Theory of Metal cutting, Metal Forming Procees

21.	Dr. D. Mishra	Thermal Engineering, Heat transfer analysis in Composite materials	6	Engineering thermodynamics, Simulation Modelling and Control, Powerplant Engineering, Experimental Techniques for Thermal Engineering, Refrigeration Engineering, Air-Conditioning Engineering
22.	Dr. P. P.Mohanty	Industrial Design and Manufacturing	5	Manufacturing Science & Technology,Advanced Manufacturing Process, Materials Engineering
23.	Mr. J. B. Lakra	Ultra-sonic base NDT & NDE.		Engineering Mechanics, Machine Design
24.	Dr. M. K. Sutar	Machine Design and Dynamics, Fault Diagnosis, Robotics, Composite/Func tionally Graded materials	11	Machine Design, Machine Dynamics, Engineering Mechanics
25.	Dr. M. Pradhan	Machine Design, Vibration and Analysis	7	Kinematics and Dynamics of Machines, Machine Dynamics, Mechanics of Solids, Advance Mechanics of Solid, Engineering Mechanics.
26.	Mr. L. Das	Robotics, Solid Mechanics.	4	Mechanics of Solid, Machine Dynaimcs, machine Design, Vibration and Robotics.
27.	Mr. S. S. Dalai	Piezoelectric Material, Conducting Polymer	0	Mechanics of Solid, Machine Design, Engg Mechanics,Fluid Mechanics,Machine Dynamics
28.	Dr. P. T.R.Swain	Thermal Engineering, Composite Materials	14	Refrigeration and Air Conditioning, Internal Combustion Engine and Gas Turbine
29.	Dr. S. K. Sahu	Non-traditional machining, Modelling and Optimization of production process, Decision and Information Science, Supply Chain Management	2	Theory of Metal Cutting, Tool Design, Metal Forming Process, Statistical Methods & Design of Experiments, Production and Operation Management, Industrial Management, Maintenance Engineering & Management, Entrepreneurship
30.	Dr. K. K. Ekka	CAD, CAM	3	Machine design
31.	Dr. Abhilash Purohit	Thermal Engineering		
32.	Mr. Swagat Dwibedi	Machine Design and Analysis		

5.6 Innovations by the Faculty in Teaching and Learning (10)

A. Statement of clear goals, use of the appropriate methods, significance of results, effective presentation

Working models/charts/monograms:

Apart from the test rigs and experimental set-ups, the labs of the mechanical engineering department are equipped with different cut-section and demonstration models (IC Engine Lab, Dynamics lab etc.,) and working models for the effective teaching-learning process.

B. Availability of the work on the Institute Website

Instructional materials:

Each classroom is equipped with the state of-the-art smart boards. Textbooks, reference books, and study notes prepared by teachers are used for instruction. Other instruction tools are whiteboard, charts and diagrams and laboratory demonstration models.

C. Availability of work for peer review and critique

The academic content of several courses offered by the faculty members is available on Institute web site for peer review and critique. Apart from that, every project and innovation filed by the faculty members is subject to rigorous review. Additionally, all research by the faculty members is submitted to high indexed peer reviewed forums.

D. Reproducibility and reusability by the other scholars

Every faculty member has an account on prestigious research forums including scopus, google scholar, research gate, web of science and ORCID. The research work of the department has high citations

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5.7 Faculty as participants in Faculty development/training activities/STTPs (15)

Name of the faculty	Max 5 Per Faculty		
	2022-23(CAYm1)	2021-22(CAYm2)	2020-21(CAYm3)
Prof.J.Rana	5.00	0.00	0.00
Prof.P.R.Dash	0.00	0.00	0.00
Prof.J.R.Mohanty	0.00	0.00	0.00
Dr.B.B.Pani	0.00	0.00	0.00
Dr.S.K.Sarangi	0.00	0.00	0.00
Dr.S.Panda	5.00	5.00	5.00
Dr.P.K.Pradhan	0.00	0.00	0.00
Dr.C.R.Deo	5.00	5.00	5.00
Dr.P.Mishra	5.00	5.00	5.00
Dr.P.Dash	5.00	5.00	5.00
Dr.S.R.Pattnaik	5.00	5.00	5.00
Dr.P.C.Mishra	0.00	0.00	0.00
Dr.A.Mohanty	0.00	0.00	5.00
Dr.H.Barik	0.00	0.00	0.00
Dr.P.Patro	0.00	5.00	5.00
Dr.S.S.Naik	5.00	5.00	5.00
Mr.D.Tripathy	0.00	0.00	0.00
Dr.P.K.Jena	0.00	0.00	0.00
Dr.S.Mishra	0.00	0.00	0.00
Mrs.J.Dehury	0.00	0.00	5.00
Dr.D.Mishra	0.00	0.00	5.00
Dr.P.P.Mohanty	0.00	0.00	0.00
Mr.J.B.Lakra	0.00	0.00	5.00
Dr.M.K.Sutar	5.00	5.00	5.00
Dr.M.Pradhan	0.00	0.00	5.00
Mr.L.Das	0.00	0.00	0.00
Mr.S.S.Dalai	5.00	0.00	5.00
Dr.P.T.R.Swain	0.00	0.00	5.00
Dr.S.K.Sahu	0.00	5.00	5.00
Dr.K.K.Ekka	5.00	0.00	5.00
Dr.S.Dwibedi	0.00	0.00	5.00
Dr.A.Purohit	0.00	0.00	5.00
Sum	50.00	45.00	95.00

RF = Number of Faculty required to comply with 20:1 Student Faculty Ratioas per 5.1	25.00	25.00	25.00
Assessment [3*(Sum / 0.5RF)]	12.00	10.80	22.80

Average assessment over 3 years: 15

5.8 Research and Development (75)

5.8.1 Academic Research (20)

- Number of quality publications in refereed/SCI Journals, citations, Books/Book Chapters etc. (15)

- Ph.D. guided /Ph.D. awarded during the assessment period while working in the institute (5)

All relevant details shall be mentioned.

Research Publications (CAYm1)

1. Ray R, **Mohanty A**, Patro P, Senapati SK. Performance improvement of a heat sink with triangular slotted and interrupted fins: A computational study. Applied Thermal Engineering. 2023, 230, Part B, doi:https://doi.org /10.1016/j.applthermaleng.2023.120783.

2. R. Ray, **A Mohanty**, P. Patro and K. Tripathy, Performance enhancement of heat sink with branched and interrupted fins, International Communications in Heat and Mass Transfer, 133, 105945 (2022). **IF:7 (SCI)**

3. Jena A, Pattnaik SK, Palei BB, **Sarangi SK**, Synthesis of diamond crystal growth on tungsten carbide inserts by HFCVD using various seeding powders. Applied Physics A Materials Science & Processing, 2022; 128:287-308. IF:2.7, (SCI).

4. Alam J., **Panda S**. Multi-objective optimisation with finite element analysis of profile shifted altered tooth sum spur gear, Advances in Materials and Processing Technologies, https://doi.org/10.1080/2374068X.2023.2173771 (https://doi.org/10.1080/2374068X.2023.2173771). IF: 2.2 (ESCI, Scopus).

5. Sahu RP, **Sutar MK**, Pattnaik S. A Generalized Finite Element Approach towards the Free Vibration Analysis of Non-uniform Axially Functionally Graded Beam. Scientia Iranica, 2022; 29(2): 556-571. doi: 10.24200/sci.2021.57274.5151, SCI, Impact Factor: 1.435.

6. Alam J., **Panda S**. Dash P a comprehensive review on design and analysis of spur gears, International Journal on Interactive Design and Manufacturing,2022 17(3-4), https://doi.org/10.1007/s12008-022-01148-w (https://doi.org/10.1007/s12008-022-01148-w), 2022; 17:993-1019. IF:2.1.

7. Rath D, **Panda S**. Analysis and prediction of tool wear in dry turning of hardened D3 steel using hybrid insert: A novel wear map approach, Proceedings of the Institution of Mechanical Engineers, Part B: Journal of Engineering Manufacture, https://doi.org/10.1177/09544054221076242 (https://doi.org/10.1177/09544054221076242), 2022;236(10):1355-1367IF:2.6 (SCI)

8. Rath, D., **Panda, S**. & Pal, K. Performance Analysis of Hybrid Ceramic Insert in Dry Turning of Hardened Tool Steel. Arab J Sci Eng, 2022; 47:15455–15476, https://doi.org/10.1007/s13369-022-06639-2 (https://doi.org/10.1007/s13369-022-06639-2).

9. **Pattnaik S**, Sutar M.K. Influence of Ultra-Sonic Drilling on Colloidal Silica Based Ceramic Moulds for Investment Casting. Silicon, 2022, 14:3981–3992, https://doi.org/10.1007/s12633-021-01166-5 (https://doi.org/10.1007/s12633-021-01166-5). **IF:3.4 (SCI)**.

10. **Dehury, J**., Nayak, S., & Mohanty, J. R. Comprehensive characterization sea purslane (Sesuvium portulacastrum) fiber and the effect of surface modifications on physical, mechanical and thermal properties. Journal of Natural Fibers, 2022, 19(13): 6031-6043. **IF:3.5, SCI.**

11. Behera, A., **Dehury, J**., & Rayaguru, B. P. The Consequence of SiC Filler Content on the Mechanical, Thermal, and Structural Properties of a Jute/Kevlar Reinforced Epoxy Hybrid Composite. Silicon, 2023, 1-11. **IF:3.4 (SCI).**

12. Dehury, J., Mohanty, J. R., Nayak, S., Samal, P., Khuntia, S. K., Malla, C., ... & Mohapatra, J. Comprehensive characterization of date palm petiole fiber reinforced epoxy composites: effect of fiber treatment and loading on various properties. Journal of Natural Fibers, 2022, 19(14):9457-9470. **IF:3.5 (SCI).**

13. **Mishra PC**, Roychoudhury A, Banerjee A, Saha N, Das SR, Das A. Coated Piston Ring Pack and Cylinder Liner Elastodynamics in Correlation to Piston Subsystem Elastohydrodynamic: Through FEA Modelling. Lubricants. 2023; 11(5):192. https://doi.org/10.3390/lubricants11050192 **(IF 3.584) - SCI-Q2.**

14. Saha N, **Mishra PC**. Modified Whale Algorithm-Based Optimization for Fractional Order Concurrent Diminution of Torque Ripple in Switch Reluctance Motor for EV Applications. Processes. 2023; 11(4):1226. https://doi.org/10.3390/pr11041226. **(IF 3.5)- SCI-Q2.**

15. Saha N, **Mishra PC**. A Multi-Objective Hybrid BESSA Optimization Scheme for Parameter Extraction from PV Modules. Applied Sciences. 2023; 13(8):4705. https://doi.org/10.3390/app13084705. **(IF 2.7) - SCI-Q1.**

16. Biswal S, Das SR, Saha N and **Mishra PC**. Environmental sustainability assessment of gasoline and methanol blended smart fuel for reduced emission formation. Environ Dev Sustain (2023). https://doi.org/10.1007/s10668-023-03752-6. **(IF 4.9) - SCI-Q1.**

17. Biswal S, **Mishra PC**. Piston Compression Ring Elastodynamics and Ring–Liner Elastohydrodynamic Lubrication Correlation Analysis. Lubricants 2022, 10, 356. https://doi.org/10.3390/lubricants10120356 . **(IF 3.584) - SCI-Q2.**

18. Rout, L. N., Mishra, D., & **Swain, P. T. R**., (2023). "Physical, Thermal, and Mechanical Characterization of Ceramic (SiC) Filled Woven Glass Fiber Reinforced Hybrid Polymer Composites", *Silicon*, pp. 1-11, 2023. **IF:3.4 (SCIE).**

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Research Publications (CAYm2)

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PhD Guided/PhD Awarded while working in the institute (5)

CAYm1		
S.No	Name of the Faculty(s)	Name of the Scholar
1	Dr. Sumanta Panda	Dr. Jawaz Alam
2	Dr. Padmanav Das	Dr. Puspa Ranjan Swain
3	Dr. P.C. Mishra	Dr. Sushant Kumar Pradhan
4	Prof. J .R. Mohanty	Dr. Sunil Kumar Sahoo
5	Prof. J. Rana	Dr. SS Naik

CAYm2		
S.No	Name of the Faculty	Name of the Scholar
1	Prof. P.R. Dash/Dr. P.K. Pradhan	Dr. J.K. Mohanty
2	Dr. P.K. Pradhan/Dr. C.R. Mohanty (CE)	Dr. A.K. Sahu
3	Prof. J.R. Mohanty	Dr. P.K. Jena
4	Prof. S.K. Sarangi	Dr. S. Padhi
5	Dr. S. Pattnaik	Dr. P.K. Sahoo
6	Dr. P. Dash	Dr. P.R. Swain
7	Prof. D. Mishra (PE)/Dr. S. Panda	Dr. S.K. Pattnaik
8	Dr. P.P. Mohanty/ Prof. S.K. Sarangi	Dr. L.R. Bhandarkar

CAYm3	

S.No	Name of the Faculty	Name of the Scholar
1	Prof. P. Nanda	Dr. S.V.H. Nagendra
2	Dr. D. Hansdah	Dr. A.K. Das
3	Dr. P. Mishra	Dr. N. Deep

5.8.2 Sponsored Research (20)

2022-23 (CAYm1)

Project Title	Duration	Funding Agency	Amount(in Rupees)
An Investigation on Mechar	2 yrs	DST Odisha	981000.00
Design, Modeling and Manu	2 yrs	OURIIP, Govt. of Odisha	616000.00
			Total Amount(X): 1597000.00

2021-22 (CAYm2)

Project Title	Duration	Funding Agency	Amount(in Rupees)
Study of parametric influenc	2 yrs	DST Odisha	1000000.00
Influence of interlayer on m:	2 yrs	OURIIP, Govt. of Odisha	420000.00
Performance enhancement	2 yrs	OURIIP, Govt. of Odisha	521000.00
			Total Amount(Y): 1941000.00

2020-21 (CAYm3)

Project Title	Duration	Funding Agency	Amount(in Rupees)
Reinforcement of Mimosa-F	2 yrs	OURIIP, Govt. of Odisha	460000.00
Parametric stability study of	2 yrs	OURIIP, Govt. of Odisha	495000.00
			Total Amount(Z): 955000.00

Cumulative Amount(X + Y + Z) =   4493000.00

5.8.3 Development activities (15)

 Product development

Mechanical Engineering Department is in continuous thrive for various product development initiatives.

- Mechanical Engineering department UG students are engaged under "BAJA SAE" club are developing "VEER RACER" a racing car and the design is at its fourth stage. The developed racing car has won many prizes at National level.
- Dr. Jawaz Alam, a PhD scholar under the guidance of Dr. Sumanta Panda, head and Assoc. Prof. in Mechanical Engineering Department has developed a cost effective gear-drive set-up.
- UG students of 2023 year of pass-out, under the guidance of Dr. Padmanav Dash have developed a multi-functional power tool that can perform grinding, cutting operations.
- "Car radiator cooling using nano-fluid" technique has been developed by a group of UG students under the guidance of Dr. P. Patro, Asst. Prof. in Mechanical Engineering Department.
- A solar refrigeration system prototype has been developed by a group of UG students under the guidance of Dr. CR Deo, Assoc. Prof. in Mechanical Engineering Department, in the year 2023
- A new "rectangular slotted fin" has been designed and manufactured by a group of UG students under the guidance of Dr. A. Mohanty, Assoc. Prof. in Mechanical Engineering Department, in the year 2023
- "Solar Powered harnessing system", has been developed by a group of UG students under the guidance of Prof. J. Rana in the year 2023.

5.8.4 Consultancy (from Industry) (20)

2022-23 (CAYm1)

Project Title	Duration	Funding Agency	Amount(in Rupees)

2021-22 (CAYm2)

Project Title	Duration	Funding Agency	Amount(in Rupees)

2020-21 (CAYm3)

Project Title	Duration	Funding Agency	Amount(in Rupees)

Cumulative Amount(X + Y + Z) =

5.9 Faculty Performance Appraisal and Development System (FPADS) (10)

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. The assessment is based on:

A well-defined system for faculty appraisal for all the assessment years (05)

The University has implemented a continuous, incisive, well-organized, and effective faculty performance appraisal system for the faculty members. For this purpose, an annual "Performance Appraisal Report (PAR)" for the faculty and staff has been designed as per AICTE 2019 guidelines, having 360 degree feedback system. This report gives a detailed description of the members' contribution to teaching-learning process, contribution in laboratory development, course development and development of teaching aids, laboratory manuals, and special lectures. In addition, participation in of organizing seminars, symposia, conferences, continuing education programs, research and development activities, sponsored research projects, contribution to department and institute administration, etc., are also considered. The PAR form is duly filled and submitted by the faculty and staff members and a scrutiny committee scrutinize the form. Further the concerned HOD forwards them to the Head of the school and the Head of the school after due verification sends it to the Vice Chancellor for further action.

The annual PAR report is given due consideration in the process of promotion and upgradation of faculty members and hence plays a vital role in the development of the academic, research and administrative system of the University.

Its implementation and Effectiveness (05)

As a result of implementation of the 360-degree feedback system as per AICTE 2019 guideline the PAR has a wide range of heads under which the concerned faculty or staff has to perform. They are not limited to:

- Teaching learning process
- Departmental activities
- University level activities
- Research and development
- Social activities etc.

This well-defined PAR form creates a spark to continuously quest for development of self and for the University, leading to an overall development.

The implementation of the faculty appraisal and its effectiveness can be judged from the followings (for last 03 years:

S.No.	Specific Head	Outcome due to Faculty Appraisal
1	Number of Research Publications	108
2	Research Project grants received (₹ in Lakh)	₹ 44,93,000/-
3	Number of PhD scholars Supervised	16
4	Number FDP, short term courses, seminars etc. attended	624

5.10 Visiting/Adjunct/Emeritus Faculty etc. (10)

Er.Dasharathi Routray (Chief Engineer, L&T)

6 FACILITIES AND TECHNICAL SUPPORT (80)

6.1 Adequate and well equipped laboratories, and technical manpower (40)

Sr. No	Name of the Laboratory	Number of students per set up(Batch Size)	Name of the Important Equipment	Weekly utilization status(all the courses for which the lab is utilized)	Technical Manpower Support		
					Name of the Technical staff	Designation	Qualification
1	Material Testing	30	Material Testing	MSNDT Lab-08	(I) Bijaya Kuma	Senior instructo	Diploma in mec
2	Production Eng	30	Production Eng	TEF Lab-08 hrs	(I) Bijaya Kuma	Senior instructo	Diploma in mec
3	Dynamics and	30	Dynamics and	Dynamics and	(I) Guptanchal	Sr. instructor	ME in heat pow
4	Metrology Lab	30	Metrology Lab	Dynamics and	(I) Guptanchal	Sr. instructor	M.E. in heat po
5	IC Engine Lab	30	IC Engine Lab	TEF Lab AP ar	(I) Jashi Bhusa	Sr. instructor I	BTech in mech
6	Refrigeration a	30	Refrigeration a	HT and RAC La	(I) Jashi Bhusa	Sr. instructor I	BTech in mech
7	Heat Transfer I	30	Heat Transfer I	HT and RAC La	(I) Jashi Bhusa	Sr. instructor I	BTech in mech
8	Hydraulic Mach	30	Hydraulic Mach	FM Lab-08 hrs	(I) Sushant Kur	Sr. instructor	Diploma in mec
9	CAD-CAM & C	30	Research lab	Research	(I) Akshaya Kur	Mechanic grad	ITI in instrumer

6.2 Laboratories maintenance and overall ambiance (10)

Ir

1. All the consumable items are maintained in the sub-ledger of the corresponding laboratory.
2. Before the beginning of each semester, all the equipments are thoroughly checked and if any deficit of any of the kit is found then efforts are made to fix it.
3. For the smooth conduction of the experiments, adequate space and well ventilation is provided in the laboratories.
4. The consumable components of laboratory get worn out (or) get damaged. These items need to be purchased periodically as when need arises. If any equipment is damaged, then the depart our technical persons, If it couldnt be possible by them, then it is sent to Authorized Equipment Manufacturer (OEM) for repairing.
5. Annually each laboratories are monitored for their assets and a status report is prepared. Some components which are obsolete are disposed from time to time.

Material Testing Lab

Production Engg. Lab

6.3 Safety measures in laboratories (10)

Ir

Sr. No	Laboratory Name	Safety Measures
1	Material Testing Lab , Production Engg. Lab	Gloves, Aprons, Shoes, Goggles
2	IC Engine Lab, Heat Transfer Lab, Refrigeration and Air conditioning Lab	Cooling water line turned on, dynamometer adjustment, proper electrical earthing, proper lubrication and cooling, Fuel lines checking for leakages, scheduled maintainance, wearing of full shoes while performing of experiments, pressure gauges and decompression of levers should be checked

6.4 Project laboratory (20)

1. <u>Model room</u> – Several projects are carried out by BTech final year students and are kept in the model room. These are helpful for future reference purpose.

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7 CONTINUOUS IMPROVEMENT (75)   T

7.1 Actions taken based on the results of evaluation of each of the COs, POs & PSOs (30)

Ir

POs Attainment Levels and Actions for Improvement- (2022-23)

POs	Target Level	Attainment Level	Observations
PO 1 : Engineering Knowledge			
PO 1	2.7	2.64	The attainment level is slightly lesser than the target level. the action taken are for the courses for which the target was not met.

Action 1: More examples will be included involving applications of fundamentals. Action 2: Practical applications of engineering skills are to be incorporated in the next syllabus revision. Action 3: Focus to enhance student's skill. Action 4: More focus on discussions related to approaching a problem, using engineering knowledge for solving problem is included. Action 5: More focus on discussions related to approaching a problem.

PO 2 : Problem Analysis			
PO 2	2.7	2.64	The attainment level is slightly lesser than the target level. The action taken are for the courses for which the target was not met.

Action 1: Target Level can be increased. Action 2: The syllabus will be modified accordingly to have easy approach to problems.

PO 3 : Design/development of Solutions			
PO 3	2.7	2.63	The attainment level is slightly lesser than the target level. The action taken are for the courses for which the target was not met.

Action1: The students are encouraged to participate in different technical clubs to develop their designing skills. Action2: Providing more practice of complex engineering problems. Action3: Organizing visits to industry to get familiar with engineering developments, problems and solutions.

PO 4 : Conduct Investigations of Complex Problems			
PO 4	2.7	2.63	The attainment level is slightly lesser than the target level. The action taken are for the courses for which the target was not met.

Action 1: The syllabus will be modified accordingly to have easy approach to problems.

PO 5 : Modern Tool Usage			
PO 5	2.7	2.59	The attainment level is slightly lesser than the target level. the action taken are for the courses for which the target was not met.

Action 1: The syllabus will be modified accordingly to have easy approach to problems.

PO 6 : The Engineer and Society			
PO 6	2.7	2.60	The attainment level is slightly lesser than the target level. the action taken are for the courses for which the target was not met.

Action 1:Students are encouraged to participate in cultural activities. Action2: Students are motivated to join different activities on societal issues.

PO 7 : Environment and Sustainability			
PO 7	2.7	2.60	The attainment level is slightly lesser than the target level. The action taken are for the courses for which the target was not met.

Action 1: Importance given to lectures to create sustainable and green solutions. Action 2: More environmental issues related lectures to be included to make the students aware of the situation.

PO 8 : Ethics			
PO 8	2.7	2.61	The attainment level is slightly lesser than the target level. The action taken are for the courses for which the target was not met.

Action 1: Human Value courses are included. Action 2: Career guidance program and motivational talks are to be arranged to gain knowledge of professional ethics.

PO 9 : Individual and Team Work			
PO 9	2.7	2.59	The attainment level is slightly lesser than the target level. The action taken are for the courses for which the target was not met.

Action 1: The students are encouraged to participate in team work to motivate them to have leadership skill. Action 2: Students are encouraged to work in real time problems applying the fundamentals knowledge.

PO 10 : Communication			
PO 10	2.7	2.64	The attainment level is slightly lesser than the target level. The action taken are for the courses for which the target was not met.

Action 1: Students are encouraged to participate through class presentations and give feedback to them for improvement in these areas. Action 2: Students were asked to write reports on certain engineering topics.

PO 11 : Project Management and Finance			
PO 11	2.7	2.63	The attainment level is slightly lesser than the target level. The action taken are for the courses for which the target was not met.

Action1:Team works are organized for students to participate as a member or team leader. Action2:Assigned projects and presentations in the field of science and humanities

PO 12 : Life-long Learning			
PO 12	2.7	2.58	The attainment level is slightly lesser than the target level. The action taken are for the courses for which the target was not met.

Action 1: lectured to be delivered are focused on fundamental concepts. Action 2: The students are motivated to educate themselves about changing technological environment. Action 3: The relation between topics taught are to be explained with simple examples.

PSOs Attainment Levels and Actions for Improvement- (2022-23)

PSOs	Target Level	Attainment Level	Observations
PSO 1 : Achieve excellence in thermal engineering, machine design, manufacturing systems and industrial engineering by acquiring knowledge in mathematics and basic science.			
PSO 1	2.7	2.52	The attainment level is slightly lesser than the target level set.
Action 1: The syllabus will be modified to encourage students to solve complex engineering problems through examples.			
PSO 2 : To implement the learned principles of mechanical engineering to analyze, interpret and provide solutions to the real-life problems by using state-of-art facilities.			
PSO 2	2.7	2.53	The attainment level is slightly lesser than the target level set.
Action 1: The target level set will be increased. Action 2: Making the student aware of the new technologies through industry visits.			
PSO 3 : Take-up career in industries or to pursue higher studies in mechanical and interdisciplinary programs with high regard for ethical values, environmental and social issues.			
PSO 3	2.7	2.54	The attainment level is slightly lesser than the target level set.
Action 1: Encouraging students to have the awareness towards environmental issues and to find solution.			

7.2 Academic Audit and actions taken thereof during the period of Assessment (15)

The Academic audit system is very active in the Institute. The Academic Audit, in our University is like program reviews, is a peer review process including a self-study by peers from within and outside the institution. The Academic audit is done in two phases: Internal Audit and External Audit. The internal audit team comprises of two faculties from each department (One with high credibility in teaching and research; the other one with exposure to accreditation, program administration). The members may be nominated by Competent Authority of the University. The members must be of equivalent rank of Professor.

The External audit is done by faculty members of other institution (Premium institution or accredited one).

AUDIT Process: Department will prepare a Self Evaluation Document(SED) and submit it electronically to IQAC cell. The Audit team (Internal & External) phase wise will visit and conduct onsite evaluation through check of documents and interaction with faculties. The HOD of the Department and Head of Scool will give a presentation in front of the internal & external experts of audit team with respect to the programs offered, faculty list, Technical staff list, Research and Contribution by faculties, Development activities of the Department etc. The audit report will be prepared citing commendation, affirmation and recommendation for each school/unit. The report will be shared with Vice Chancellor/Dean Facult & Planning/Head of Scool/Head of Department. The Vice Chancellor/Dean Faculty planning will analyze the data and will make aware to the HOD and faculties about the loop holes and ask for improvement. The Vice Chancellor will finally share the comprehensive report of the Department and faculty members to skill development and technical education, Govt of Odisha.

The audit report comprises of following parameters:

1. **General Information:** Name of the Dept, Year of Establishment, No of Programmes, Categories of students, No of Faculties,Major features of the Dept etc

2. **Curriculam Aspects:** Curriculam design and development, Academic Flexibility, Curriculam Enrichment, Feedback System

3. **Teaching-Learning & Evaluation:** Student Enrolment and Profile, Catering to Student Diversity, Teaching-Learning Process, Teacher Quality, Evaluation Process and Reforms, Student Porcess and Reforms, Student Performance and Learning Outcomes

4. **Research, Consultancy & Extension:** Promotion of Research, Resource Mobilization for Research, Research Publication & Awards,Consultancy, Extension Activities & Departmenatl Social Responsibility, Collaboration

5. **Infrastructure & Learning Resources:** Physical Facilities, Library as a learning Resource, IT Infrastructure, Maintenance of Campus Facilities

6. **Student Support and Progression:** Student Mentoring and Support, Student Progression, Student Participation and Activities

7. **Governance, Leadership and Management:**Department Vision and leadership, Strategy Development and Deployment, Faculty Empowerment Strategies, Financial Management and Resource Mobilization, Internal Quality Assurance System

8. **Innovations and Best Practices**: Environment Consciousness, Innovations, Best Practices

9. **Overall Analysis:** Departmental Strengths, Departmental Weaknesses, Departmental Opportunities, Departmental Challenges

10. **Recommendation for Quality Enhancement of the Department** (To be given by the Experts)

7.3 Improvement in Placement, Higher Studies and Entrepreneurship (10)

Like other premier institutes of the country, VSSUT has also a well-established Training and Placement (T&P) cell which is a history of multiple decades. The T&P cell of VSSUT is proactive in conducting placement drives for students of the university. As department of Electrical Engineering is among the few branches that is present with the institute since its establishment, therefore alumnae of this department are now working in many prestigious companies, Government sectors, research organizations and academic institutes. Many of them have their own companies also where they are creating employments. As per the placement drives, the T&P cell contact the companies and vice-versa in which the placement team and alumnae work together for healthy number of placements. The placement cell has both student representatives and faculty advisor from each department. Dr. Debasmita Mishra is now acting as the faculty advisor from department of Mechanical Engineering. Various categories of companies are consulting for campus drives. Software companies like Infosys, Wipro, TCS, Cognizant, GLOBAL HITACHI, IBM codeknack, RELIANCE JIO MOBILITY, GenC, KFINTECH, DELOITTE, ASICZEN TECHNOLOGIES etc. are hiring students of Mechanical Engineering each year in campus drive. Many high paying companies like Goldman Sachs, Google etc. are also coming for recruitment. Besides that, many core companies like L&T, Vedanta, JSW, Maruti-Suzuki, JSPL, TATA Power, J K Paper, Aqua green, Aditya Birla, SAPOORJI PALLONJI, Shri Mahavir Alloys, ADANI, DCM SHRIRAM etc. are also repeatedly recruiting students of the department. Companies like PRADAN and BIJU has also recruited some students of the department.

For enhancement of employability of the students, T&P cell is conducting many skill development programs like RedHat, Blue Prism, Robotics, Data Analytics, Cybersecurity, AI/ML, Virtual Cloud etc. In addition to this, the students of the department are trained through different workshops in technical writing using LATEX, Use of AI/ML toolboxes of MATLAB software, effective PPT presentation using advanced technologies like ChartGPT etc.

7.4 Improvement in the quality of students admitted to the program (20)

Item		2023-24	2022-23	2021-22
National Level Entrance Examination JEE MAIN	No of students admitted	156	156	126
	Opening Score/Rank	103017	51237	50891
	Closing Score/Rank	1095681	854010	769757
State/ University/ Level Entrance Examination/ Others Nil	No of students admitted	0	0	0
	Opening Score/Rank	0	0	0
	Closing Score/Rank	0	0	0
Name of the Entrance Examination for Lateral Entry or lateral entry details OJEE	No of students admitted	12	12	12
	Opening Score/Rank	35	3	13
	Closing Score/Rank	339	284	227
Average CBSE/Any other board result of admitted students(Physics, Chemistry&Maths)				

8 FIRST YEAR ACADEMICS (50)

8.1 First Year Student-Faculty Ratio (FYSFR) (5)

Please provide First year faculty information considering load

Name of the faculty member	PAN No.	Qualification	Date of Receiving Highest Degree	Area of Specialization	Designation	Date of joining	Teaching load (%)			Currently Associated (Yes / No)	Nature Of Association (Regular / Contract)	Date leaving case Curr Asso is 'N
							CAY	CAYm1	CAYm2			
Mr.L.Das	APHPD6974Q	B.E/B.Tech	06/06/2012	Machine Design and Analysis	Assistant Professor	18/10/2016	100	100	100	Yes	Regular	
Dr Ashapurna I	AZOPD4546P	M.Sc. and PhD	14/12/2020	Lingiustics	Assistant Professor	26/08/2009	100	100	100	Yes	Regular	
Dr Prasanta Ku	ATUPP5930H	M.Sc. and PhD	04/12/2014	Business Communication Indian Writing in English	Assistant Professor	11/02/2016	100	100	100	Yes	Regular	
Dr. Sakambari	BJFPM6524G	ME/M. Tech and PhD	25/03/2023	Image Processing	Assistant Professor	20/06/2014	100	100	100	Yes	Regular	
Dr. Suvasini Pa	ALOPP3659H	ME/M. Tech and PhD	17/07/2010	Intrusion detection Use of Machine learning and Deep learning in Health Care	Associate Professor	01/07/2013	100	100	100	Yes	Regular	
Dr. Satyapraka	CAOPS8513C	ME/M. Tech and PhD	13/08/2020	Computer Networking	Assistant Professor	05/08/2009	100	100	100	Yes	Regular	
Ms.Jhunarani (	ABIPO4414D	M.E/M.Tech	26/06/2013	Transportation Engineering	Assistant Professor	18/06/2015	100	100	100	Yes	Regular	
Ms.Sudhira Ra	ABNPR8307H	M.E/M.Tech	28/11/1998	Transportation Engineering	Assistant Professor	01/07/1991	100	100	100	Yes	Regular	
M.P.K. Sahoo	EDWPS4793B	M.Sc. and PhD	25/11/2011	Experimental Condensed matter Physics	Assistant Professor	25/09/2017	100	100	100	Yes	Regular	
Dr. Bineeta Sor	CUVPS4674K	ME/M. Tech and PhD	13/11/2023	Power System Engineering	Assistant Professor	29/09/2014	100	100	100	Yes	Regular	
Prangyan Moh;	AWSPM0147J	ME/M. Tech and PhD	23/10/2021	Power System	Assistant Professor	21/05/2015	100	100	100	Yes	Regular	
Dr.Chandrama	APPPC7150K	M.Sc. and PhD	08/01/2020	American Literature	Assistant Professor	22/09/2017	100	100	100	Yes	Regular	
Sashank Shekl	AMEPD6716G	M.E/M.Tech	12/06/2014	Applied Mechanics	Assistant Professor	25/10/2016	0	0	100	Yes	Regular	
Rasmita Sahu	DKRPS2656N	M.E/M.Tech	21/05/2014	Dielectric Resonator Antenna	Assistant Professor	02/06/2014	0	100	0	Yes	Regular	
Dr Manas Ranj	AJAPK2591F	ME/M. Tech and PhD	21/01/2011	Internet and Quality of Service	Professor	05/09/2001	0	50	0	Yes	Regular	
Dr S. S. Sarang	ELFPS3626H	M.Sc. and PhD	08/04/2011	Computational Condensed Matter Physics	Assistant Professor	03/06/2015	100	100	0	Yes	Regular	
Mr.Amit Mallick	CUXPM1208F	M.E/M.Tech	18/07/2015	Power System Engineering	Assistant Professor	21/10/2016	0	50	0	Yes	Regular	
Prof.P.R.Dash	ACFPD9666A	ME/M. Tech and PhD	15/05/2000	Design Vibration	Professor	11/01/2001	100	100	0	Yes	Regular	
Dr.M.Pradhan	CJIPP8137L	ME/M. Tech and PhD	30/10/2018	Machine Design and Analysis	Assistant Professor	19/05/2015	0	100	0	Yes	Regular	
Lopamudra Gh	BAAPG3696M	ME/M. Tech and PhD	06/08/2011	Signal Processing	Assistant Professor	20/06/2014	50	0	0	Yes	Regular	
Dr. Achyut Kun	AIAPP4045N	M.Sc. (Engineering) and PhD	30/04/2012	Organic Chemistry	Associate Professor	04/06/2014	100	0	0	Yes	Regular	
Dr.A.K.Barik	ARMPB0701G	M.Sc. and PhD	09/11/2011	Material Science	Assistant Professor	06/06/2014	50	0	0	Yes	Regular	

| Ajaya Kumar D | BJYPD9134Q | M.E/M.Tech | 30/06/2015 | Structural Engineering | Assistant Professor | 10/12/2016 | 100 | 0 | 0 | Yes | Regular | |
| S.P.Panigrahi | AQAPP6299G | ME/M. Tech and PhD | 10/06/2009 | Energy Management Signal Processing | Associate Professor | 06/10/2016 | 100 | 0 | 0 | Yes | Regular | |

Year	Number Of Students(approved intake strength) N	Number of Faculty members(considering fractional load) F	FYSFR (N/F)	*Assessment=(5*2 to Max.5)
2021-22(CAYm2)	120	13	9	5
2022-23(CAYm1)	120	17	7	5
2023-24(CAY)	120	18	7	5
Average	120	16	7	5

AverageFYSFR: 0.00

Assessment [(5 * 15) / AverageFYSFR]:   5.00

8.2 Qualification of Faculty Teaching First Year Common Courses (5)

Total Marks 5.00

Institute Marks : 5.00

Year	x (Number Of Regular Faculty with Ph.D)	y (Number Of Regular Faculty with Post graduate Qualification)	RF (Number Of Faculty Members required as per SFR of 20:1)	Assessment Of Faculty Qualification [(5x + 3y) / RF]
2021-22	6	3	6	6.00
2022-23	10	3	6	9.00
2023-24	13	3	6	12.00

Average Assessment: 9.00

8.3 First Year Academic Performance (10)

Total Marks 7.23

Institute Marks : 7.23

Academic Performance	CAYm1(2022-23)	CAYm2(2021-22)	CAYm3 (2020-21)
Mean of CGPA or mean percentage of all successful students(X)	7.18	7.24	7.81
Total Number of successful students(Y)	145.00	117.00	120.00
Total Number of students appeared in the examination(Z)	151.00	121.00	120.00
API [X*(Y/Z)]	6.89	7.00	7.81

Average API[(AP1+AP2+AP3)/3] : 7.23

Assessment = Average API : 7.23

8.4 Attainment of Course Outcomes of first year courses (10)

Total Marks 10.00

8.4.1 Describe the assessment processes used to gather the data upon which the evaluation of Course Outcomes of first year is done (5)

Institute Marks : 5.00

All the courses offered in the first year of the program curriculum are broadly classified into 3 categories with their individual assessment methods:

1. Theory courses
2. Sessional courses

Course outcome attainment for each type of course is discussed below.

Course Category	Type of Assessment	Assessment Tools	Marks	Category	CO Attainment type
Theory	Direct	Assignments, Quiz tests (Formative assessments)	20	Cumulative Internal Examination (CIE)	Formative type
		Mid Semester Examination	30	Cumulative Internal Examination (CIE)	Direct CO Att. (70% weightage)
		End Semester Examination	50	Semester End Examination (SEE)	
	Indirect	Course Completion feedback			Indirect CO Att. (30% weightage)

Data Acquisition Process CO attainment of theory courses:

- For direct CO attainment, all the questions of mid-semester and end semesters are mapped with course outcomes during the preparation of the question paper.
- For the indirect CO attainment, semester-end feedbacks are collected by the department to acquire opinions about each CO from the students.
- Final computation of course outcomes attainment is done using direct and indirect Cos attainments through spreadsheets by the concerned faculty. CO attainment information will be compiled by the course coordinators and information passed on to the School Quality Assurance Cell and Program Assessment Committee for subsequent decisions and actions.
- The calculation for attainments is performed after the declaration of end-semester examination results. All documentations related to attainments are maintained by the course coordinators.

8.4.2 Record the attainment of Course Outcomes of all first year courses (5)

Institute Marks : 5.00

Course	Direct CO Attainment	Indirect CO Attainment	Final CO Attainment	Target CO Attainment	Target achieved (Y/N)
BEE2101	2.62	2.651	2.6355	2.6	Y
BPH2101	2.31	2.63	2.47	2.6	N
BHU2102	2.54	2.56	2.55	2.6	N
BMA2101	2.57	2.83	2.7	2.6	N
BME2101	2.64	2.52	2.58	2.6	Y
BEE2191	2.73	2.52	2.625	2.6	Y
BPH2191	2.63	2.72	2.675	2.6	Y
BME2192	2.51	2.81	2.66	2.6	Y
BHU2191	2.48	2.62	2.55	2.6	Y
BEC2101	2.43	2.52	2.475	2.6	N
BCH2101	2.27	2.41	2.34	2.6	N
BCE2102	2.59	2.62	2.605	2.6	Y
BMA2201	2.58	2.52	2.55	2.6	N
BCS2102	2.28	2.39	2.335	2.6	N
BEC2191	2.69	2.73	2.71	2.6	Y
BCH2191	2.61	2.69	2.65	2.6	Y
BCE2192	2.82	2.62	2.72	2.6	Y
BCS2191	2.72	2.61	2.665	2.6	Y

8.5 Attainment of Program Outcomes from first year courses (20)   Total Marks 20.00

8.5.1 Indicate results of evaluation of each relevant PO and/or PSO if applicable (10)

Institute Marks : 10.00

POs Attainment:

Course	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
BEE21	2.521	2.763	PO3	2.150	PO5	2.212	PO7	2.764	2.328	PO10	2.369	PO12
BPH21	2.543	2.431	2.659	PO4	2.546	PO6	2.472	2.372	2.328	2.467	2.118	2.328
BHU21	2.112	PO2	2.432	2.476	2.146	2.654	2.486	PO8	PO9	2.527	PO11	2.175
BMA21	2.101	2.376	PO3	2.378	PO5	2.543	2.378	PO8	2.598	PO10	2.678	2.214
BME21	2.406	2.378	2.375	PO4	2.568	PO6	2.543	2.687	2.734	2.167	2.436	2.436
BEE21	PO1	PO2	2.123	2.435	PO5	2.376	2.467	2.456	2.578	PO10	2.367	2.435
BPH21	2.653	2.245	2.654	PO4	2.378	2.132	2.546	2.657	PO9	2.765	2.567	PO12
BME21	2.345	2.215	PO3	2.237	PO5	2.653	PO7	2.875	2.435	PO10	2.378	PO12
BHU21	2.112	2.453	2.278	PO4	2.356	2.654	PO7	PO8	2.654	2.378	PO11	2.764
BEC21	2.342	2.653	2.436	2.235	PO5	PO6	2.167	2.347	2.642	PO10	PO11	2.378
BCH21	2.276	PO2	2.376	PO4	2.654	2.235	PO7	2.178	PO9	2.456	2.567	PO12
BCE21	PO1	PO2	2.436	2.167	PO5	PO6	2.345	PO8	2.546	2.357	PO11	2.754
BMA22	2.345	2.156	PO3	2.456	PO5	2.624	2.245	PO8	2.621	2.156	2.362	PO12
BCS21	2.435	2.135	2.178	PO4	2.654	PO6	PO7	2.764	PO9	2.456	PO11	2.365
BEC21	2.145	2.342	PO3	2.783	2.431	PO6	2.367	PO8	2.257	PO10	2.456	PO12
BCH21	PO1	PO2	2.432	2.156	PO5	2.567	PO7	2.626	PO9	2.873	PO11	2.367
BCE21	2.145	2.543	PO3	PO4	2.367	PO6	2.735	PO8	2.276	PO10	2.268	PO12
BCS21	2.267	PO2	2.345	2.754	PO5	2.167	PO7	2.367	PO9	2.478	2.478	2.456

PO Attainment Level

PSOs Attainment:

Course	PSO1	PSO2	PSO3
BEE21	2.16	2.45	2.76
BPH21	2.56	2.35	2.41
BHU21	2.63	2.37	2.45
BMA21	2.37	2.43	2.17
BME21	2.54	2.73	2.48
BEE21	2.46	2.63	2.47
BPH21	2.58	2.43	2.59
BME21	2.54	2.38	2.73
BHU21	2.67	2.53	2.18
BEC21	2.57	2.38	2.49
BCH21	2.38	2.69	2.49
BCE21	2.73	2.56	2.48
BMA22	2.39	2.68	2.41
BCS21	2.38	2.47	2.39
BEC21	2.17	2.49	2.52
BCH21	2.43	2.67	2.53
BCE21	2.48	2.53	2.69
BCS21	2.37	2.48	2.49

PSO Attainment Level

Course	PO1	PO2	PO3
Direct Attainment	2.47	2.51	2.48
PSO Attainment	2.47	2.51	2.48

8.5.2 Actions taken based on the results of evaluation of relevant POs and PSOs (10)

Institute Marks : 10.00

Course	PO1	PO2	PO3
Direct Attainment	2.47	2.51	2.48
PSO Attainment	2.47	2.51	2.48

8.5.2 Actions taken based on the results of evaluation of relevant POs and PSOs (10)

Institute Marks : 10.00

POs Attainment Levels and Actions for Improvement- (2022-23)

POs	Target Level	Attainment Level	Observations

PO 1 : Engineering Knowledge

PO 1	2.6	2.45	The attainment level is slightly lesser than the target level. The remedial action is taken for the courses for which the target was not met.

Action 1: More examples will be included involving applications of fundamentals. Action 2: Practical applications of engineering skills are to be incorporated in the next syllabus revision. Action 3: Focus to enhance student's skill. Action 4: More focus on discussions related to approaching a problem, using engineering knowledge for solving problem is included. Action 5: More focus on discussions related to approaching a problem.

PO 2 : Problem Analysis

PO 2	2.6	2.65	The attainment level is slightly higher than the target level. The remedial action is taken for the courses for which the target was not met.

Action 1: Target Level can be increased. Action 2: The syllabus will be modified accordingly to have easy approach to problems.

PO 3 : Design/development of Solutions

PO 3	2.6	2.56	The attainment level is slightly lesser than the target level. The remedial action is taken for the courses for which the target was not met.

Action1: The students are encouraged to participate in different technical clubs to develop their designing skills. Action2: Providing more practice of complex engineering problems. Action3: Organizing visits to industry to get familiar with engineering developments, problems and solutions.

PO 4 : Conduct Investigations of Complex Problems

PO 4	2.6	2.63	The attainment level is slightly higher than the target level. The remedial action is taken for the courses for which the target was not met.

Action 1: Target Level can be increased. Action 2: The syllabus will be modified accordingly to have easy approach to problems.

PO 5 : Modern Tool Usage

PO 5	2.6	2.52	The attainment level is slightly lesser than the target level. The remedial action is taken for the courses for which the target was not met.

Action 1: Target Level can be increased. Action 2: The syllabus will be modified accordingly to have easy approach to problems.

PO 6 : The Engineer and Society

PO 6	2.6	2.50	The attainment level is slightly lesser than the target level. The remedial action is taken for the courses for which the target was not met.

Action 1:Students are encouraged to participate in cultural activities. Action2: Students are motivated to join different activities on societal issues.

PO 7 : Environment and Sustainability

PO 7	2.6	2.64	The attainment level is slightly higher than the target level. The remedial action is taken for the courses for which the target was not met.

Action 1: Importance given to lectures to create sustainable and green solutions. Action 2: More environmental issues related lectures to be included to make the students aware of the situation.

PO 8 : Ethics

PO 8	2.6	2.69	The attainment level is slightly higher than the target level. The remedial action is taken for the courses for which the target was not met.

Action 1: Human Value courses are included. Action 2: Career guidance program and motivational talks are to be arranged to gain knowledge of professional ethics.

PO 9 : Individual and Team Work

PO 9	2.6	2.51	The attainment level is slightly lesser than the target level. The remedial action is taken for the courses for which the target was not met.

Action 1: Students are encouraged to participate through class presentations and give feedback to them for improvement in these areas. Action 2: Students were asked to write reports on certain engineering topics.

PO 10 : Communication

PO 10	2.6	2.68	The attainment level is slightly higher than the target level. The remedial action is taken for the courses for which the target was not met.

Action 1: Students are encouraged to participate through class presentations and give feedback to them for improvement in these areas. Action 2: Students were asked to write reports on certain engineering topics.

PO 11 : Project Management and Finance

PO 11	2.6	2.53	The attainment level is slightly lesser than the target level. The remedial action is taken for the courses for which the target was not met.
Action1:Team works are organized for students to participate as a member or team leader. Action2:Assigned projects and presentations in the field of science and humanities			

PO 12 : Life-long Learning

PO 12	2.6	2.58	The attainment level is slightly lesser than the target level. The remedial action is taken for the courses for which the target was not met.
Action 1: lectured to be delivered are focused on fundamental concepts. Action 2: The students are motivated to educate themselves about changing technological environment. Action 3: The relation between topics taught are to be explained with simple examples.			

PSOs Attainment Levels and Actions for Improvement- (2022-23)

PSOs	Target Level	Attainment Level	Observations
PSO 1 : Achieve excellence in thermal engineering, machine design, manufacturing systems and industrial engineering by acquiring knowledge in mathematics and basic science.			
PSO 1	2.6	2.54	The attainment level is slightly lesser than the target level set.
Action 1: The syllabus will be modified to encourage students to solve complex engineering problems through examples.			
PSO 2 : To implement the learned principles of mechanical engineering to analyze, interpret and provide solutions to the real-life problems by using state-of-art facilities.			
PSO 2	2.6	2.68	The attainment level is slightly higher than the target level set.
Action 1: The target level set will be increased. Action 2: Making the student aware of the new technologies through industry visits.			
PSO 3 : Take-up career in industries or to pursue higher studies in mechanical and interdisciplinary programs with high regard for ethical values, environmental and social issues.			
PSO 3	2.6	2.50	The attainment level is slightly lesser than the target level set.
Action 1: Encouraging students to have the awareness towards environmental issues and to find solution.			

9 STUDENT SUPPORT SYSTEMS (50)　　　　　　　　　　　　　　Total Marks 50.00

9.1 Mentoring system to help at individual level (5)　　　　　　　　Total Marks 5.00

Institute Marks : 5.00

MENTORING SYSTEM

Mentoring immensely contributes in improvement of the overall academic and personal development of students. The students are greatly benefitted by incessant proficient guidance of mentors. Each faculty member acts as mentor with a group of 25 mentees preferably.

Roles & Responsibilities of Mentor

All the mentors perform the following roles in mentorship process:

1) Gaining the Trust: All the mentors work hard to gain the trust of their mentees wit effective mentoring.

2) Documents and Records Keeping: Mentors keep key documents (Academic Testimonials required for effective mentoring.

3) Continuous Meet: All mentors hold a meeting regularly or as when required with all of his/her mentee. Reports in this regard are made and kept by mentors for experiencing effective mentorship with personal and professional issues such as attendance in theory & laboratory classes, NPTEL/Coursera/MOOCs completion etc.

4) Alerts and Reminders: Mentors play the important role of an efficient disseminator with respect to any kind of notices (form fill-up, data update, examination etc.), information about events, competitive areas, skill development modules etc.

5) Help and Support: Mentors always help the mentee in gaining all kinds of benefit like Scholarship, Books, Notes etc.

7) Motivator: Mentor always motivates his/her mentee to be very competitive and win the show whether its academic, sports, cultural etc.

MENTORING SYSTEM

Mentoring immensely contributes in improvement of the overall academic and personal development of students. The students are greatly benefitted by incessant proficient guidance of mentors. Each faculty member acts as mentor with a group of 20 mentees preferably.

Roles & Responsibilities of Mentor

All the mentors perform the following roles in mentorship process:

1) Gaining the Trust: All the mentors work hard to gain the trust of their mentees with effective mentoring.

2) Documents and Records Keeping: Mentors keep key documents (Academic Testimonials, MAR Documents, Mentee"s personal details etc.) required for effective mentoring.

3) Continuous Meet: All mentors hold a meeting regularly or as when required with all of his/her mentee. Reports in this regard are made and kept by mentors for experiencing effective mentorship with personal and professional issues such as attendance in theory & laboratory classes, MAR Point earned, NPTEL/Coursera/MOOCs completion etc.

4) Alerts and Reminders: Mentors play the important role of an efficient disseminator with respect to any kind of notices (form fill-up, data update, examination etc.), information about events, competitive areas, skill development modules etc.

5) Help and Support: Mentors always help the mentee in gaining all kinds of benefit like Scholarship, Books, Notes etc.

6) Ethical Shield to the Mentee: Mentor act like an ethical shield to mentee for his/her safeguard towards any kind of undesirable and unproven offence.

7) Motivator: Mentor always motivates his/her mentee to be very competitive and win the show whether its academic, sports, cultural etc.

8) Mentor as Friend and Family: All the mentors go beyond the level from a faculty to Friend and Family zone under pleasant environment and maintain the healthy relationship with their mentee. For getting deeper in this section acts like wishing of birthday, greeting to different occasions, festivals and achievements, suggestions about movies, songs, books, shows etc. helps.

9) Compliance: Mentors sportingly comply to data demanded like MAR documentation, Mentorship Portal Report etc.Type of mentoring: Professional guidance/career advancement/course work specific/laboratory specific/all-round development. Number of faculty mentors: Number of students per mentor: Frequency of meeting:

Mentorship Committee:

A Mentorship committee to govern the activities of the mentors is in place. Structure and functions for the same is given below:

Committee	Structure	Function	Frequency
Mentorship Committee	a) Coordinator – One Senior Faculty Member b) Members – One faculty member from each department	a) To allocate the mentor-mentee. b) To provide necessary suggestion for mentorship. c) To perform as bridge between Institute and Department regarding mentorship functioning & circulation of information. d) To report academic committee about the mentorship status of the institute.	(a) The Mentorship Committee shall meet as often as may be necessary but not less than two times during a semester. (b) Coordinator may convene a meeting as and when she/he deems fit without any prior notice.

Proforma for Mentorship:

Student's Performance Assessment

Assessment Parameters	Outstanding O (90-100)%	Excellent E (80-89)%	Very Good A (70-79)%	Good B (60-69)%	Average C (50-59)%	Poor D (40-49)%	Corrective Measures & Assessment Thereof
Attendance (Theory)							
Attendance (Lab)							
Academic Performance (Theory)							
Academic Performance (Lab)							

To address the various issues of students a university level committee **(SMCC, Student Monitoring and Counselling Committee)** has been developed which comprises many senior members of the concerned department. The term of the committee is for 2 years. SMCC will be responsible to address the personal and academic issues of students. They will meet the student representatives in regular intervals. Visit hostels to interact with wardens and students for better well beings of students' stay and food. SMCC can take up any other issues which they deem fit and improve the communication gap among students, faculty, and administration. On department level a list of faculties has been assigned as mentors for the concerned department students. On average there are 20 students under one faculty. Assigned faculties can address various student issues on personal basis.

9.2 Feedback analysis and reward /corrective measures taken, if any (10)   Total Marks 10.00

Assessment Parameters	Outstanding O (90-100)%	Excellent E (80-89)%	Very Good A (70-79)%	Good B (60-69)%	Average C (50-59)%	Poor D (40-49)%	Corrective Measures & Assessment Thereof

Institute Marks : 10.00

Feedback collected for all courses: YES;

Specify the feedback collection process; Student's feedback are collected for all courses for all teachers in each semester. Generally HOD depute the teachers who are not taking the concerned subjects to collect the feedback.

Average Percentage of students who participate; Specify the feedback analysis process; Basis of reward/ corrective measures, if any; Indices used for measuring quality of teaching& learning and summary of the index values for all courses/teachers;

Number of corrective actions taken: The HOD also does councelling to the same teachers whose feedback is not satisfactorily.

P01 - Has the Teacher covered entire Syllabus as prescribed by University/ College/Board?

P02 - Has the Teacher covered relevant topics beyond syllabus?

P03 - Effectiveness of Teacher in terms of: [Technical content/course content]

P04 - Effectiveness of Teacher in terms of: [Communication skills]

P05 - Effectiveness of Teacher in terms of: [Use of teaching aids]

P06 - Pace on which contents were covered

P07 - Motivation and inspiration for students to learn

P08 - Support for the development of Students' skill [Practical demonstration]

P09 - Support for the development of Students' skill [Hands on training]

P10 - Clarity of expectations of students

P11 - Feedback provided on Students' progress

P12 - Willingness to offer help and advice to students

Table-2020-2021:-

2020-2021		
Sl. No	Faculty Name	AVG-FeedBack Score
1	Prof. J. Rana	9.46
2	Prof. P.R. Dash	9.2
3	Prof. J. R. Mohanty	9.25
4	Prof. S.K. Sarangi	9.62
5	Dr. S. Panda	9.64
6	Dr. P. K. Pradhan	10
7	Dr. C. R. Deo	9
8	Dr. P. Mishra	9
9	Dr. P. Dash	10
10	Dr S. R. Pattanaik	10
11	Dr. P. C. Mishra	9.5
12	Dr. A. Mohanty	9.5
13	Dr. P. Patro	9.4
14	Dr. H. Barik	9
15	Dr. P. K. Jena	10
16	Dr. S. S. Naik	9.3
17	Mr. D. Tripathy	9.2
18	Dr. S. Mishra	9.4
19	Mrs. J. Dehury	9.56
20	Dr. P. P. Mohanty	9.5
21	Dr. D. Mishra	9.77
22	Mr. J.B. Lakra (On Leave)	
23	Dr. M.K. Sutar	10
24	Dr. M. Pradhan	9.69
25	Mr. L. Das	9

26	Mr. S.S. Dalai (on leave)	
27	Dr. P.T.R. Swain	9.88
28	Dr. S.K.Sahu	9.96
29	Dr. K. K. Ekka	9.5
30	Dr. P Nanda	9.3

Table-2021-2022-

	2021-2022	
Sl. No	Faculty Name	AVG-FeedBack Score
1	Prof. J. Rana	9.35
2	Prof. P.R. Dash	9.1
3	Prof. J. R. Mohanty	9.4
4	Prof. S.K. Sarangi	9.67
5	Dr. S. Panda	9.6
6	Dr. P. K. Pradhan	10
7	Dr. C. R. Deo	9.5
8	Dr. P. Mishra	9.4
9	Dr. P. Dash	10
10	Dr S. R. Pattanaik	10
11	Dr. P. C. Mishra	9.6
12	Dr. A. Mohanty	9.6
13	Dr. P. Patro	9.5
14	Dr. H. Barik	9.5
15	Dr. P. K. Jena	9.8
16	Dr. S. S. Naik	9.45
17	Mr. D. Tripathy	9.2
18	Dr. S. Mishra	9.2
19	Mrs. J. Dehury	9.3
20	Dr. P. P. Mohanty	9.3
21	Dr. D. Mishra	9.77
22	Mr. J.B. Lakra (On Leave)	
23	Dr. M.K. Sutar	10
24	Dr. M. Pradhan	9.69
25	Mr. L. Das	9
26	Mr. S.S. Dalai (on leave)	
27	Dr. P.T.R. Swain	9.887
28	Dr. S.K.Sahu	9.97
29	Dr. K. K. Ekka	9.35
30	Dr. P Nanda	9

Table-2022-2023

	2022-2023	
Sl. No	Faculty Name	AVG-FeedBack Score
1	Prof. J. Rana	9.46
2	Prof. P.R. Dash	9
3	Prof. J. R. Mohanty	8.2
4	Prof. S.K. Sarangi	9.62
5	Dr. S. Panda	9.64
6	Dr. P. K. Pradhan	10
7	Dr. C. R. Deo	9
8	Dr. P. Mishra	9
9	Dr. P. Dash	10
10	Dr S. R. Pattanaik	10
11	Dr. P. C. Mishra	9.5
12	Dr. A. Mohanty	9.5
13	Dr. P. Patro	9.4
14	Dr. H. Barik	7.12
15	Dr. P. K. Jena	9.61
16	Dr. S. S. Naik	8.39
17	Mr. D. Tripathy	8.28
18	Dr. S. Mishra	8.4
19	Mrs. J. Dehury	8.71
20	Dr. P. P. Mohanty	8.4
21	Dr. D. Mishra	9.96
22	Mr. J.B. Lakra (On Leave)	
23	Dr. M.K. Sutar	9.64
24	Dr. M. Pradhan	9.69
25	Mr. L. Das	9
26	Mr. S.S. Dalai (on leave)	
27	Dr. P.T.R. Swain	8.785
28	Dr. S.K.Sahu	9.83
29	Dr. K. K. Ekka	8.4
30	Dr. P Nanda	9

	2023-2024	
Sl. No	Faculty Name	FeedBack Score
1	Prof. J. Rana	9.74
2	Prof. P.R. Dash	9.55
3	Prof. J. R. Mohanty	9.8
4	Prof. S.K. Sarangi	9.96
5	Dr. S. Panda	9.68
6	Dr. P. K. Pradhan	9.7
7	Dr. C. R. Deo	9.6
8	Dr. P. Mishra	9.92
9	Dr. P. Dash	10

10	Dr S. R. Pattanaik	9.81
11	Dr. P. C. Mishra	8.66
12	Dr. A. Mohanty	9.3
13	Dr. P. Patro	9.44
14	Dr. H. Barik	9.86
15	Dr. P. K. Jena	9.7
16	Dr. S. S. Naik	9.78
17	Mr. D. Tripathy	8.12
18	Dr. S. Mishra	9.03
19	Mrs. J. Dehury	9.65
20	Dr. P. P. Mohanty	8.88
21	Dr. D. Mishra	9.65
22	Mr. J.B. Lakra (On Leave)	
23	Dr. M.K. Sutar	9.79
24	Dr. M. Pradhan	9.49
25	Mr. L. Das	9.78
26	Mr. S.S. Dalai (on leave)	
27	Dr. P.T.R. Swain	9.22
28	Dr. S.K.Sahu	9.71
29	Dr. K. K. Ekka	9.17
30	Dr. P Nanda	8.88

The institute has a well-defined process for feedback collection with respect to all the

courses. The following process is practiced by the institution in this regard:

Average percentage of students who participated: >75%

Number of corrective actions taken: faculty members who scored

low in feedback were advised for the improvement.

9.3 Feedback on facilities (5)   Total Marks 5.00

Institute Marks : 5.00

Assessment is based on student feedback collection, analysis and corrective action taken.

Those students having low CGPA, extra classes should be provided to them

Different facilities for which feedback are taken from students:

i) Hostel

ii) Library

iii) Mentorship

iv) Extra-Curricular Activities

v) Class Room

vi) Lab

Basis for corrective actions: In any parameters mentioned above, if average score obtained

is less than 50%, actions may be triggered as per the requirement.

On each academic session feedback on different aspects of the programme under the concerned department is collected from the students through **Internal Quality Assurance Cell (IQAC)**. Thereafter necessary corrective actions are taken as per higher authorities' instruction. The different types of feedback collected by the IQAC are as follows:

- Exit survey (UG/PG)
- Student satisfaction survey
- Program Educational Objectives (PEO) survey

9.4 Self-Learning (5)   Total Marks 5.00

Institute Marks : 5.00

Self-learning facility provided to the students.

1. Generally the students are asked to do same courses from NPTEL, MOOCS and from other sources beyond regular syllabus.
2. In 7th and 8th semester, the students are given seminar on advanced topic. In view of this they are advised to follow journal papers in the library and prepare for the seminar. The faculty members also guide in choosing appropriate topic of seminar.
3. T&P also organizes some skill training program which will be industry related.
4. During vacation students are encouraged to go for training programs in CTTC and similar other organization.

Facilities for self-learning:

i. Wi-fi enabled Campus
ii. Internet connectivity
iii. Exclusive internet/virtual laboratory for students
iv. Well-equipped central library
v. Digital Library
vi. Lecture Bank (Prepared by Faculty Members of Institute)
vii. Seminar/Webinar organized by Institution for self-learning purpose.

Materials for self-learning / extramural learning:

i. Lectures Notes
ii. COURSERA
iii. NPTEL (MOOCS) courses
iv. IEEE on line journals

The students are encouraged by the concerned faculties for self-study and exploration of new ideas. To enforce the same, study materials are provided in the University website under department page for various subjects. Study materials for various subjects are carefully prepared by the concerned faculties and updated as per requirement. Short term courses are arranged and students from under graduate and post graduates are encouraged to attend the same. Research lab facilities are there to facilitate the students with necessary equipment to aid their research workflow.

9.5 Career Guidance, Training, Placement (10)   Total Marks 10.00

Institute Marks : 10.00

1. T&P arranged internship training program for the students as per their field of interest.

2. The T&P officer visit different potential organization who recruit on mass scale and liasen for better placement. The student representation also help the T&P officer for smooth conduct of campus interview.

3. The student usually collect the recommendation letters from different professor to persue higher studies especially in abroad.

4. Some of the students also prepare for gate examination from reputed organization during the vacation.

5. Local study tour is arranged by interested faculty members. So that the students acquire industry related experience.

6. Some of the students who have been selected in some organization are allowed to attend Six month training in respected organization. In order to facilitate industry experience university authority officially allow them to do the same. During that period they also appear exam for specified courses.

Industrial visits are arranged to different places like power plants and power grids in order to explore the practical application of theoretical knowledge. Pre-placement talks are arranged by the university to aid the final year students in their campus drive placement. Multiple webinars by eminent personalities are arranged to encourage and educate the students about different career options.

9.6 Entrepreneurship Cell   Total Marks 5.00

Institute Marks : 5.00

EDP cell is available in the university who organize talks/training program by some successful entrepreneur in the university. To educate and encourage entrepreneurship mindset among students **TED TALKS** are arranged in which successful entrepreneurs participate to share their success journey with the students. For the same reason university level **E-Cell** has been created, which facilitates students' interaction with successful entrepreneurs.

9.7 Co-curricular and Extra-curricular Activities   Total Marks 10.00

Institute Marks : 10.00

1. Samavesh-Tech fest is organized by the University for the Development of co-curricular activities of the students.

2. Moreover, INNOVA tech fest is also organized in the department level to aware the student in the recent development in technical field.

3. Some expert person also are invited to deliver valuable technical talks.

4. Some technical society for the development of innovative idea.

Different Societies: Social service society-

DATE	PURPOSE	VENUE
5.02.2024	Prathama Biswa Odia Bhasa Sammilani	E-learning centre
26.01.2024	Republic Day	Administrative building of the University
23.01.2024	Netaji subhash Chandra bose and Veer surendra sai jayanti	AVC, VSSUT
09.12.2023-15.12.2023	Integrated youth development program (IYDP)	E-learning centre
30.11.2023	15th Convocation	Auditorium
9.11.2023-11.11.2023	VRIDDHI-2023	NIT, RKL
01.11.2023	Vigilance awarness week	E-learning centre
25.09.2023	Interactive session with Prof. Kiran Seth Founder of SPICMACAY	E-learning centre
24.09.2023	Seminar and Networking session about STARTUP SYNERGY	E-learning centre
06.09.23	Janmastami celebration	E-learning centre
29.08.2023	Optimal Guidance For National Space Missions by Prof.Radhakant Padhi	E-learning centre
14-19-08-2023	Elimination of Lymphatic Filariasis by NSS VSSUT	NEAR AVC
10.08.2023	Seminar on Rocketry and Space organization	E-learning centre
20/07.2023-7.08.2023	ISRO start Program	VSSUT
21.08.23-25.08.23	FDP	E-learning centre
21.06.23	International yoga day	Administrative building of the University
17.05.2023	Summer internship	T&P
12.04.2023	Sahaja Yoga meditation Programme	E-learning centre
29.03.2023	Spiritual cum cultural programme organised by ISKON	E-learning centre
16.03.23	Blood donation camp	E-learning centre

4.3.2023-6.3.2023	Annual Techno cultural fest SAMAVESH and VASSAUNT	VSSUT
28.2.2023	14th Convocation	AVC
15.2.2023	Cancer Awareness Programme	E-learning centre
3.1.2023	Grand Welcome of Hocky World Cup	E-learning centre
19.03.2022	Holi	Campus of hall of residence
31.01.22	13th Annual convocation	Virtual mode
24.10.2022	Diwali celebration	All HoR
19.12.21	NCC	University playground
04.11.21	Diwali	Campus of hall of residence
22.11.21-26.11.21	FDP	E-learning centre
26.01.21	Republic Day	Administrative building of the University
04.12.20	12th convocation	Auditorium
18.01.21-22.01.2021	FDP	E-learning centre
26.01.2020	Republic Day	Administrative building of the University

1. **Republic day-26.01.2024**

2. **Netaji subhash Chandra bose and Veer surendra sai jayanti-23.01.2024**
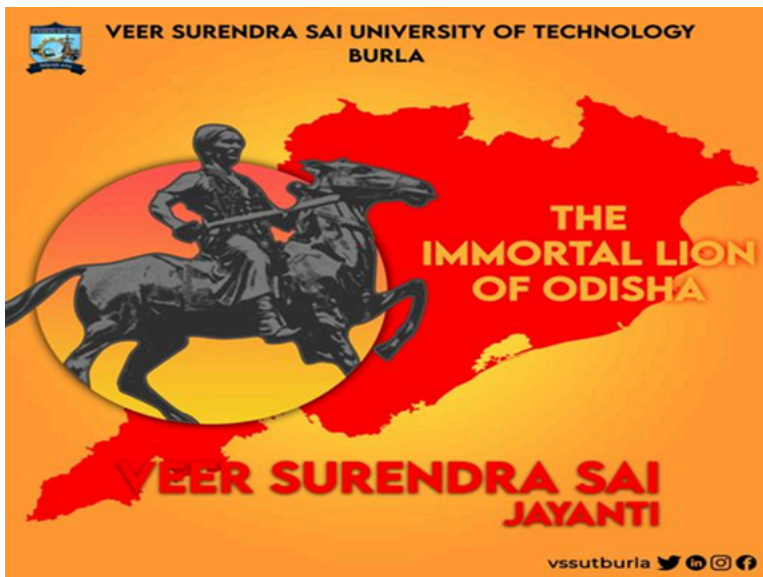

3. **IYDP-**09.12.2023-15.12.2023

4. **Blood donation camp: 16/03/2023 –E-learning centre-organised by NSS VSSUT, SSG Society**

5. Netaji subhash Chandra bose and Veer surendra sai jayanti-23.01.2023

6. Grand wecome of Hocky Cup-3.1.23

7. **ILLUMINA-27.1.2024-28.1.2024**

Burla, Odisha, India
FWW3+PMC, Burla, Odisha 768018, India
Lat 21.497222°
Long 83.904131°
27/01/24 09:31 AM GMT +05:30

8. Achievements in Different Technical Sector

VEER SURENDRA SAI UNIVERSITY OF TECHNOLOGY
BURLA   Startup Odisha

VSSUT SHINES AT **STARTUP MELA 2023**

VSSUT students secured **1st** prize
in **'Quizzards - Ultimate Startup Quiz '**

vssutburla

VSSUT SHINES AT STARTUP MELA 2023

Team **MetaLabs** secured 2nd position in **'Student Exhibitor'**

VEER SURENDRA SAI UNIVERSITY OF TECHNOLOGY BURLA

CONGRATULATIONS!!

Team TECHNOVATE from VSSUT, Burla soared to success at NIT Rourkela 's Aeroprix event, clinching the second runner-up position.

VEER SURENDRA SAI UNIVERSITY OF TECHNOLOGY BURLA

Congratulations

VeerRacerss Electric

For securing AIR 1 in EV category & Endurance at FORMULA IMPERIAL

AIR 3 among all CV & EV category

9. Swachhata Abhiyan in VSSUT Campus

10. Annual Function-VASSUNT

10 GOVERNANCE, INSTITUTIONAL SUPPORT AND FINANCIAL RESOURCES (120)

Total Marks 120.00

10.1 Organization, Governance and Transparency (55)

Total Marks 55.00

10.1.1 State the Vision and Mission of the Institute (5)

Institute Marks : 5.00

Vision: To emerge as an internationally acclaimed Technical University to impart futuristic technical education and creation of vibrant research enterprise to create quality engineers and researchers, truly world class leader and unleashes technological innovations to serve the global society and improve the quality of life.

Mission: The Veer Surendra Sai University of Technology, Odisha, Burla strives to create values and ethics in its products by inculcating depth and intensity in its education standards and need based research through

Participative learning in a cross-cultural environment that promotes the learning beyond the class room.

Collaborative partnership with industries and academia within and outside the country in learning and research.

Encouraging innovative research and consultancy through the active participation and involvement of all faculty members.

Facilitating technology transfer, innovation and economic development to flow as natural results of research where ever appropriate.

Expanding curricula to cater broader perspectives.

Creation of service opportunities for upliftment of the society at large.

10.1.2 Availability of the Institutional Strategic Plan and its Effective Implementation and Monitoring (25)

Institute Marks : 25.00

**VEER SURENDRA SAI UNIVERSITY OF TECHNOLOGY
BURLA, SAMBALPUR, ODISHA**

**University Development Plan
to Transform into a
Multi-Disciplinary
Engineering & Research
University (MERU)**

**VEER SURENDRA SAI UNIVERSITY OF TECHNOLOGY BURLA
ODISHA – 768 018, INDIA
October 2022**

1.PREAMBLE

VSSUT Burla was established in 1956 as an engineering college in the name of the University College of Engineering (UCE) to solve a problem in society. As Hirakud Dam, independent India's first multi-purpose river dam was commissioned, there was a need for home-grown engineers to operate and maintain the dam that was meant to control flood, the powerhouse to generate power and a canal system to irrigate vast tract of land.

In the span of 66 years, the University has produced over 40,000 alumni. It has dedicated itself to the infrastructure, industrial growth, and socio-technical development of the state and nation as a whole. The roads, ports, dams, power plants, transmission lines, industries, irrigation projects, and rural electrifications are built-in Odisha with the overwhelming participation of its alumni. It has been playing a key role in the rural and urban developmental programs of the region; it is the central monitoring center for the State Government's programs such as Pradhan Mantri Gramya Sarak Yojana (PMGSY), Watershed projects, etc. Its alumni can be seen in the Boardrooms of leading PSUs and private companies; they occupied top positions in the Indian Army / Navy / Air Force, DRDO, and ISRO; they are on the faculty boards of almost all IITs, NITs, and many foreign Universities.

The University has carved a name for itself for its undiluted and uncompromising approach to education and the intensity of its teaching. In recognition of its contribution to society, the State Government upgraded it to a technical university in 2009. Presently, in addition to its rich undergraduate programs, it has preserved the strong legacy of research culture in terms of Post-graduate and research programmes in all disciplines of science and engineering.

2.VSSUT – THE JOURNEY SO FAR
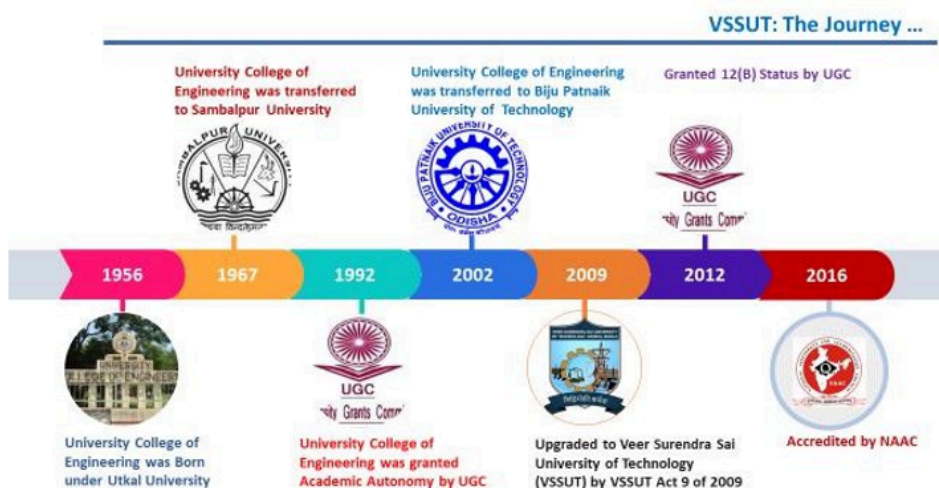
The legendary institute had made a modest beginning in 1956 by taking 30 students each in three departments, viz Civil, Electrical & Mechanical, operating from the make-shift workshop of the Hirakud Dam. VSSUT presently offers 10 B.Tech., 22 M.Tech., B.Arch., MCA, and 3 M.Sc. programs, and details with seat strength are attached as **ANNEXURE-1**. Almost all B.Tech. programs are NBA accredited and rests have been applied for accreditation. Today, its students intake is 1644 in B. Tech, M. Tech, M Sc, MCA, Ph. D. and the total student strength on the campus is 4956.

In addition, 150 Research Scholars are pursuing their Ph. D. in various disciplines. VSSUT has been identified as the nodal center of the AICTE Quality Improvement programme for pursuing Ph.D. and also as the center for National Doctoral Fellowship (NDF) Scheme by AICTE. Ph. D. students are enrolled under the NDF scheme from 2018-19.

3.THE SWOT ANALYSIS

STRENGTHS

1. Undiluted academic standards for 66 years
2. Strong and worldwide Alumni network
3. Performing students – beating IIT / NIT students in national-level competitions.
4. Adequate quality faculty

WEAKNESSES

1. Inadequate, aged Infrastructure
2. Outdated Lab equipment, software
3. Absence of specialized R & D labs
4. Inadequate IPR, Sponsored Research & Consultancy
5. Inadequate student recreation facility
6. Weak academic Outreach

THREATS

1. Inadequate funding for an institute as vast in infra & student base as IIT, or NIT - leading to fast degradation
2. Peer institutes growing in size
3. Reluctance of companies to visit a remote place like Burla for Placement

90oOPPORTUNITIES

1. Massive industrialization in Odisha asking for more quality engineers
2. ~ 300 Acre Land for expansion
3. Surrounded by institutes & industries
4. Attitude of students toward Rocketry, product development, Entrepreneurial spirit, Incubation

4. **WINGS OF TRANSFORMATION AT VSSUT**

In line with the Nation Education Policy -2020, VSSUT plans to expand its wings in line with a large-scale Multidisciplinary Education and Research University (**MERU**) to serve a larger mass of students of Odisha who are aspirants to pursue quality education at an affordable cost.

a. **Increased intake at B. Tech. Level**

VSSUT aspires to offer more B.Tech. Programs that are relevant in today's time and increase the student strengths in excess of 10,000 on the campus by 2028.

Programs	Current position in 2022		Projection by 2028	
	Intake	Students Strength	Intake	Students Strength
B. Tech. + B. Arch.	996	3810	2083	8332
M. Tech.	396	792	396	792
M.Sc. (2 yrs)+MCA	102	204	120	240
Ph.D.	150	150	500	1500
TOTAL	**1644**	**4956**	**3116**	**10,864**

b. **Projection for other performance parameters**

Parameters	Present	By 2028
On-time Graduation	85%	95%
GATE/ NET Coverage	40%	60%
Career & Placement	80%	95%
Innovation & Incubation	05	10 per year
Technology	CTTC ISRO	AI, Data Science, ML, Healthcare, Robotics and Automation, Modern Manufacturing
NIRF Ranking	116	Top 50 in India
NBA Accreditation	10 UG Courses 03 PG Courses	All UG & PG courses
NABL Accreditation	-	10 Labs
New Programs	02	11 UG and 5 PG programs
Faculty Hiring	220	550 (1:15 as per AICTE norms)

c. **Multi-Disciplinary Character**

Subsequently, besides Engineering and Sciences, it aspires to open a School of Medical Technology on one campus – making it a true **Multi-Disciplinary Institute**.

d. **Skill Development Centre**

VSSUT aspires not only to produce quality graduates in Engineering, and Medical Technology but also wants to open its laboratory facilities, faculties, and innovative students to equip the Diplomas and ITIs of Odisha with the necessary skills to be entrepreneurs or be Industry- ready.

e. **Setting up R&D Laboratories in association with Industries**

VSSUT aspires to be a cutting-edge Research Centre in association with MCL, Vedanta, Hindalco, and TPWODL. The lab will be dedicated to develop solutions by our faculty and students. It will also help to have result-oriented collaboration with the industry.

5.Step by Step Methodology for Execution

a. **Creation of various Schools (in the immediate term)**

For optimum sharing of knowledge and resources such as faculties, laboratory facilities. Conferences etc., it is envisaged to put together a similar family of departments, e.g. Computer Science and Engineering, IT, MCA are clubbed under the School of Computer Science and Engineering; Mechanical Engg, Manufacturing, Production, Metallurgy, etc. are clubbed under School of Mechanical Science. Each school will be operated from a single building, be headed by a Dean. This will de-centralize the control of VC and bring tremendous synergy among departments.

Sl#	Name of the School	Name of the Branch
1	Computer Science and Engineering	Computer Science & Engineering
		Computer Science & Engineering (Artificial Intelligence & Machine Learning)
		Computer Science & Engineering (Data Science)
		Computer Science & Engineering (IoT)
		Computer Science & Engineering (Cyber Security)
		Information Technology
2	Electrical Sciences	Electrical Engineering
		Electrical & Electronics Engineering
		Electronics & Communication Engineering
3	Mechanical Sciences	Mechanical Engineering
		Production Engineering
		Aerospace Engineering
		Industrial Engineering & Management
		Metallurgical & Materials Engineering
4	Infrastructure & Planning	Civil Engineering
		Bachelor of Architecture
		Bachelor in Planning
5	Chemical and Bio Sciences.	Chemical Engineering
		Petroleum Engineering
		Biotechnology
6	Earth & Environmental Sciences	***Mining Engineering***
7	Humanities and Basic Sciences	Physics, Chemistry, Mathematics***, Life Science***

Note: Those depts. in Italic & Bold are proposed new departments

The yearly intake in existing as well as newly opened UG programs, will be **2083** as shown below and the total student strength including PG and Ph.D. will be more than 10,000 in the campus.

Sl#	Name of the branch	Intake (with EWS)	GIN	TFW (5%)	Lat Ent (10%)	Total
1	*Computer Science & Engineering*	*120 +30*	*1*	*6*	*12*	*169*
2	*Computer Science & Engg (AI&ML)*	*60+15*	*0*	*3*	*6*	*84*
3	*Computer Science & Engg (Data Science)*	*60+15*	*0*	*3*	*6*	*84*
4	*Computer Science & Engg (IoT)*	*60+15*	*0*	*3*	*6*	*84*
5	*Computer Science & Engg (Cyber Security)*	*60+15*	*0*	*3*	*6*	*84*
6	*Information Technology*	*60+15*	*0*	*3*	*6*	*84*
7	*Electrical Engineering*	*120+30*	*2*	*6*	*12*	*170*
8	*Electrical & Electronics Engineering*	*60+15*	*0*	*3*	*6*	*84*

9	Electronics & Tele-Communication Engg	120+30	2	6	12	170
10	Mechanical Engineering	120+30	3	6	12	171
11	Production Engineering	60+15	0	3	6	84
12	*Aerospace Engineering*	60+15	0	3	6	84
13	*Industrial Engg & Management*	60+15	0	3	6	84
14	Metallurgical & Materials Engineering	60+15	0	3	6	84
15	Civil Engineering	120+30	2	6	12	170
16	Bachelor of Architecture	40+10	0	2	0	52
17	*Bachelor in Planning*	60+15	0	3	6	84
18	Chemical Engineering	60+15	0	3	6	84
19	*Biotechnology*	60+15	0	3	6	84
20	*Mining Engineering*	60+15	0	3	6	84
	J&K Quota		5	0	0	05
	TOTAL	1480+370	15	74	144	2083

Note: Those depts. in Italic & Bold are proposed new departments

b. **Creation of Centres of Excellences - (in Immediate Term)**

Quantity is a critical mass, but quantity alone does not make a good University; Research must strive on the campus and new products/solutions must be evolved to serve the society. In line with this goal, each school will have more than one center of excellence (COE). The CoEs will be based on society-relevant areas like IoT, Augmented Reality/Virtual Reality, Steel making etc. COEs will facilitate research in the frontier areas where faculty and students will work on real-life industry problems. Further, these COEs will work on developing cost-effective products for the benefit of the community. The incubation and innovation cell will be strengthened further to attract more innovative projects like one existing from ISRO.

A striking feature is – each of these CoEs will have partnerships with a few industries in the same field and will have a few Alumni as mentors.

CoEs under the School of Computer Science and Engineering

Centres of Excellence	Industry Mentor (Alumnus)	Proposed Industry Partnership
IoT	*Sambit Patra (IoT, Intel)*	*IBM, Intel, Sankalp Semiconductors*
Block Chain	*Manish Sinha (Niti Aayog), Debjani Mohanty (Collabera)*	*Tech Mahindra, Deloitte*
AI & ML	*Rakesh Barik (Deloitte), Dhirendra Bhupati (Microsoft, USA)*	*NVidia, Deloitte, Microsoft, Google*
AR & VR	*Dhiraj Sinha (Capgemini)*	*Capgemini*

CoEs under the School of Electrical Sciences

Centres of Excellence	Industry Mentor (Alumnus)	Proposed Industry Partnership
Power Generation	*Jaydev Nanda (Adani Power)*	*NTPC, OPGC, OHPC*
Insulation Integrity	*Ashesh Padhy (JSW)*	*NTPC, OPGC, OHPC*
Semiconductor & VLSI	*Anup Nayak (USA)*	*Qualcomm, Intel, Foxconn*
Power Electronics	*RP Sasmal (Ex-PGCIL), Sudhansu Kannungo (Schinder Electric)*	*ABB, Honeywell, Schinder Electric, Siemens*
Communication, 5G	*Pramod Panda (BSNL), Sasi Panda (CISCO, USA), Manoj Mohanty (JIO)*	*JIO, Siemens, Samsung, CISCO*
Drone Technology	*Om Prakash (IG Drones)*	*IG Drones*

CoEs under School of Mechanical Sciences

Centres of Excellence	Industry Mentor (Alumnus)	Proposed Industry Partnership
Robotics & Mechatronics	*Naveen Gupta (Merc Benz)*	*L&T,ABB, Honeywell, Fanuc*
Welding Technology	*Rashmi Mohapatra (Teams)*	*Kempee*

Smart Manufacturing (Industry 4.0)	Sibhasis Maity (Ex-CTTC)	L&T, Tata Steel
Automotive & EV	Tapan Sahu (Maruti Suzuki)	Maruti
Space Technology	Bijan Das (Ex-ISRO), Binay Das (DRDO ECS)	ISRO, DRDO
Tribology, Vibration analysis	Rakesh Das (Tata Auto Components), Sushant Panda (IIT Kharagpur)	SKF, Tata Technologies

CoEs under the School of Infrastructure and Planning

Centres of Excellence	Industry Mentor (Alumnus)	Proposed Industry Partnership
Rural Development & Sustainable Technology	Sutapa Pati (Xavier School of Sustainability), Alok P	XIMB, Bhubaneswar
Smart City Design	JK Kapoor (Centre of Town Planning)	GoO, GoI, KPMG, EY, Deloitte, JUSCO
Smart Irrigation	Nanda Mohapatra (Ex-DoWR)	DoWR
Sustainable Habitat Planning	J K Kapoor	Housing and Urban Affairs, GOI

CoEs under the School of Earth & Environmental Sciences

Centres of Excellence	Industry Mentor (Alumnus)	Proposed Industry Partnership
Mineral Processing	Ashesh Padhy (JSW)	JSW Steel, Roongta
Steel Making	SS Mohanty (Ex-SAIL)	Tata Steel, JSPL, Arcelor Mittal
Aluminum Making	SB Nayak (Ex-NALCO), JK Mohanty (Ex-Vedanta), Athar Shahab (Ex-Vedanta)	Vedanta, Aditya Aluminum, NALCO
Disaster Management		DoWR, NDRF

CoEs under the School of Chemical & Bio Sciences

Centres of Excellence	Industry Mentor (Alumnus)	Proposed Industry Partnership
Bio-Medical Engg		VIMSAR
Petroleum Engg.		IOCL

CoEs under the School of Humanities & Basic Science

| Centres of Excellence	Industry Mentor (Alumnus)	Proposed Industry Partnership
Nuclear Science		BARC, NPC
Tribal Welfare		
Environment		

c. **Skill Development Centre (in Immediate Term)**

VSSUT has a plan to establish a Skill Centre to train the unemployed Diploma/ITI/ Matriculates in Welding, Drone survey, Automobile, Transformer Repair and Design, Textile Fabric design, Medical Technology, and Apparel design to make them industry-ready and inculcate the spirit of entrepreneurship. Our own students and faculty will impart training to these employable youth of Odisha.

d. **Adding School of Medical Technology (in the Long term)**

After the Campus is expanded and the Engineering stream is consolidated, the next step would be to use the existing Academic building for opening a Medical College to roll out at least 1000 doctors a year. VSSUT School of Medical Technology will collaborate with VSSUT

School of Engineering to produce cutting-edge products such as artificial limbs, artificial respirators, Robot-based based surgery, quick tests for Cancer, etc. At the same time, VSSUT School of Medical Science will derive synergy from nearby VIMSAR to produce cutting-edge research.
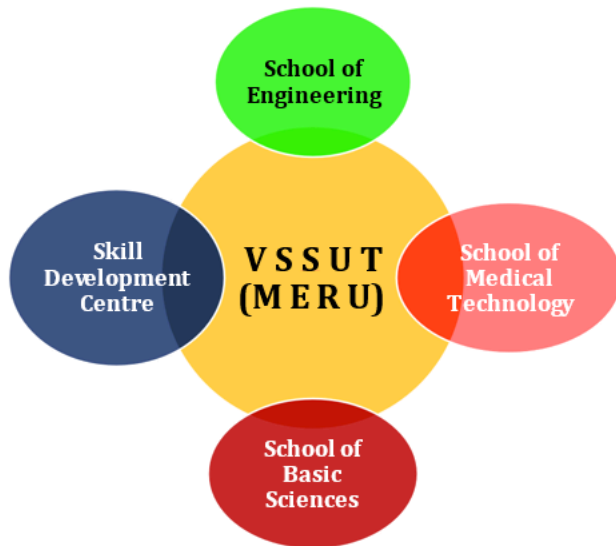
6.ADDITIONAL INTAKE VIS-À-VIS OPERATIONAL EXPENDITURE

a. **Graceful increase of Intake from 2022-28**

Academic Year	Sanctioned Intake	Increase in Intake	Cumulative Intake
2022-23	120	140	**140**
2023-24	120	140	**280**
2024-25	120	140	**420**
2025-26	120	140	**560**
2026-27	120	140	**700**
2027-28	140	160	**860**
2028-29	200	240	**1100**
TOTAL	**940**	**1100**	

b. **Operating Expenses of Faculty, Non-Teaching Staff, and Teaching Assistants (TAs)**

Due to an increase in intake of 1100 B.Tech. students, the faculty requirements will be 188 as per AICTE norms with STR 1:20. However, the faculty requirement will be optimized to 127 by adopting the following:

i. Large classrooms of size 150 with advanced ICT facilities

ii. Lab size to accommodate 60 students in one slot to optimize Technical Assistants

iii. Engage TAs with M.Tech. who will pursue Ph.D. and will be trained in Teaching- Learning to produce quality teachers of the future.
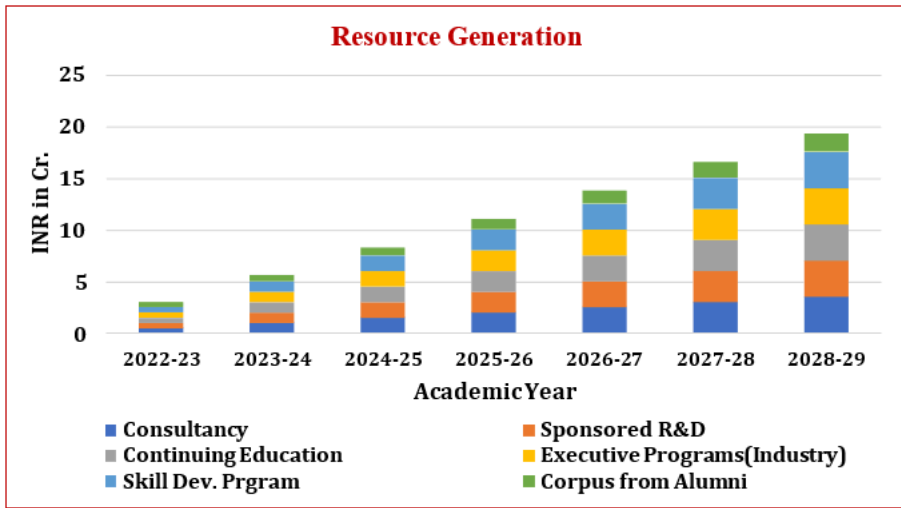
Accordingly, the OPEX is computed for the need of faculty, Non-teaching staff, and TAs as,

Academic Year	Incr Intake	Faculty 01:20	Faculty Added	Staff added	TAs M.Tech.	Faculty Salary(Cr)	Staff Salary	TAs salary(Cr)	Total OPEX(Cr)
2022-23	120	24	15	6	5	2.88	0.36	0.3	**3.54**
2023-24	120	24	30	12	10	5.76	0.72	0.6	**7.08**
2024-25	120	24	45	18	15	8.64	1.08	0.9	**10.62**
2025-26	120	24	60	24	20	11.52	1.44	1.2	**14.16**
2026-27	120	24	75	30	25	14.4	1.8	1.5	**17.70**
2027-28	140	28	95	36	30	18.24	2.16	1.8	**22.20**
2028-29	200	40	127	42	35	24.384	2.52	2.1	**29.00**

c. **Increase in Operating Expenses year-wise due to the successive increase in intake**

Head	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29
House Keeping	0.24	0.48	0.72	0.96	1.2	1.44	1.75
Security Services	0.24	0.48	0.72	0.96	1.2	1.44	1.75
Gardening	0.24	0.48	0.72	0.96	1.2	1.44	1.75
Electricity Charges	0.24	0.48	0.72	0.96	1.2	1.44	1.75
Salary	3.54	7.08	10.62	14.16	17.70	22.20	29.00
Total OPEX	**4.26**	**8.52**	**12.78**	**17.04**	**21.3**	**26.52**	**34.25**

d. **Resource Generation**

Resource Generation

(e) Comparative Analysis

Additional Intake

OpEx (Salary)

OpEx (Recurring)

Internal Resource Generation
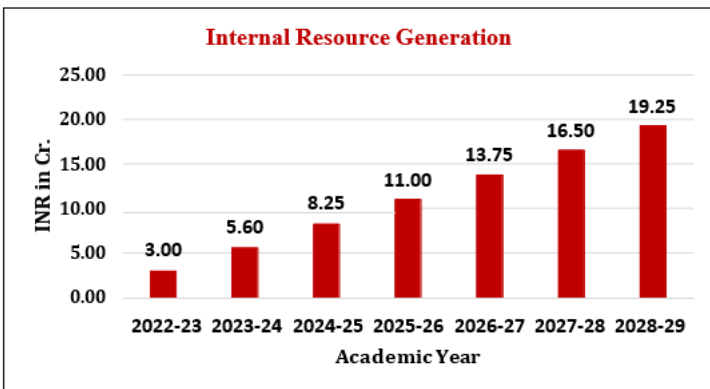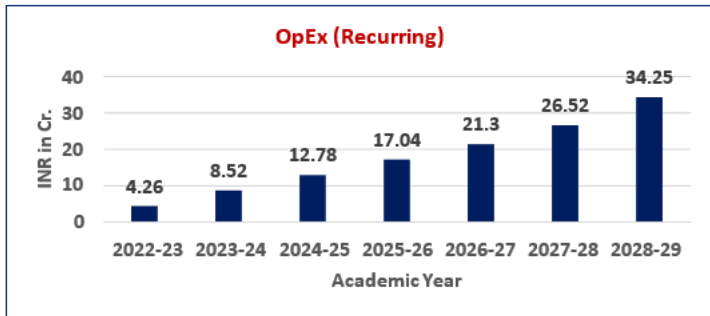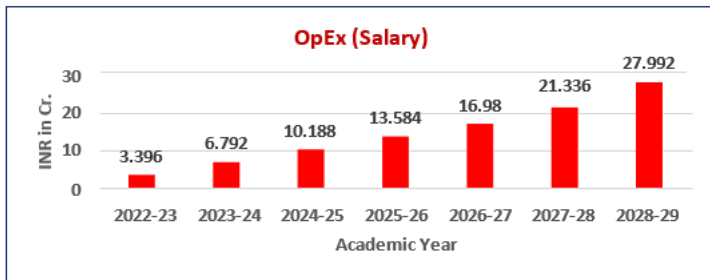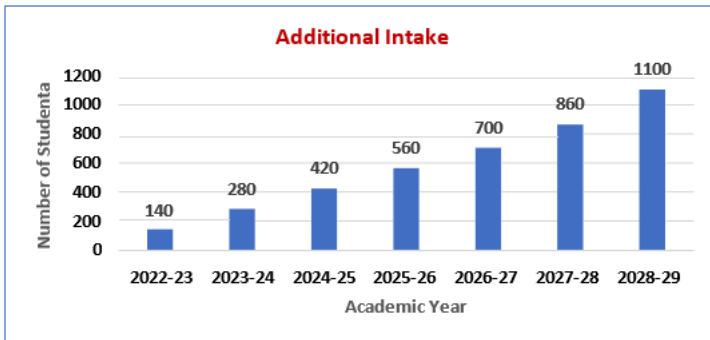
7.INFRASTRUCTURE REQUIREMENT

Presently, the university has 143 acres of land out of which the existing buildings (academic, residences, and hostels) are in 95 acres and 48 acres are available. Another 80 acres of land in continuum to the existing campus has been identified and requested for transfer. If the proposed 80 acres will be available, a total of 128 acres would be used for expansion as per IDP submitted.

The existing public road bifurcates the existing campus and is used by the students, staff, and faculty to commute to academic campus from hostels and residences respectively. During the peak academic hour, there always exists high risk of accidents as it happened many a times in the past, where students have sustained major injuries. With the implementation of the IDP, the student strength would be doubled and so also the risk. Hence, it is suggested to reroute the said public road outside VSSUT premises on the bank of the power channel. It may be further noted that SDA has planned a ring road, which would bisect the proposed extended campus of VSSUT (80 acres). Hence, it is also requested to realign the proposed ring road in the similar fashion to outside the proposed extended campus of VSSUT.

It will enable to have a monolithic and integrated campus like other institutes of repute, eliminating the public trespass and thoroughfare.

This layout envisions:

- There will be seven Schools out of which three Schools (Electrical Sciences, Earth & Environment Sciences, Infrastructure and Planning (partially)) would be operating from the existing Academic Building. This existing academic building will also operate as Skill Development Centre to impart skills to the Diplomas, ITIs, and unemployed youth. There will be a classroom complex and a laboratory complex.
- A new campus would be created in the proposed new land. It has been planned as a Heritage Campus. This will have 4 nos. of G + 4 buildings (provision for 5 buildings) of equal size and shape, the design is inspired by the Konark Wheel. The balance 4 Schools (Computer Science, Chemical and Bio Sciences, Mechanical, and Civil) will operate from this new campus. Each School will be headed by a Dean; a single building will encompass the classrooms, laboratories, Centre of Excellence, Conference Halls, Faculty chambers related to the one School.
- The Vice Chancellor's office would be in easy accessible location to all Schools, and will house the Registrar & his / her office, CFO & his / her office, Examination Section, Administrative Section, Establishment Section, etc.
- All other academic elements e.g. the Library complex, Training & Placement, Central Research Centre, Convention Centre, Workshop with state-of-art Fab Lab, etc will come around this Central Plaza.
- All other amenities such as additional hostels, Auditorium, Students Activity Centre, Food Plaza, Shopping Centre, Indoor Sports Stadium, Guest House etc. will come at suitable locations in proximity to the Central Plaza.
- The new high-rise G + 10 residences faculties, non-teaching staff, Club House etc. will come at the existing colony after demolishing the 60-years old and heavy- maintenance-prone residences.
- Adequate allocation shall be made to renovate old academic buildings, and old hostels, as well as revamping of Laboratory equipment.
- It is presumed that it would take 5 years to complete the above works. Once completed, the existing but renovated building shall be released to open a School of Medical Technology (50 students a year, a total strength of 250).
- Establishment of CoEs in schools

Sl#	Centres of Excellences	Sl#	Centres of Excellences
1	IoT	15	Automotive & EV
2	Block Chain	16	Space Technology & Rocketry
3	Artificial Intelligence & Machine Learning	17	Tribology & Vibration Analysis
4	Augmented Reality & Virtual Realty	18	Mineral testing
5	Quantum Computing	19	Steel Making
6	Power Generation	20	Aluminium Making
7	Insulation Diagnostic Testing	21	Disaster Management
8	Semiconductor & VLSI	22	Rural Development & Sustainable Technology
9	Power Electronics	23	Smart City Design
10	Communication, 5G	24	Smart irrigation
11	Drone Technology	25	Biomedical Engineering
12	Robotics & Mechatronics	26	Petroleum Engineering
13	Welding Technology	27	Nuclear Science
14	Manufacturing & Additive Technology		

The Land structure (Existing + Proposed)

PROPOSED MASTER PLAN
Revision -1

REDEVLOPMENT OF VEER SURENDRA SAI UNIVERSITY OF TECHNOLOGY (VSSUT)
BURLA, SAMBALPUR, ODISHA

The Proposed new Infrastructure

(a) Academic Schools

(b) Laboratory Complex

(c) Smart Classroom Complex

(d) Residential facility for faculty & Staff

Total estimated cost for this scheme is **INR 2000 Crores**. The detail cost estimates along with implementation plan is given in **ANNEXURE – 2**.
It may be noted that a cost estimate of Rs 4000/- is used per sqft unless otherwise stated specifically.

ESTIMATED BUDGET

Sl#	Particulars	Area in sqft	Cost	Total
SCHOOLS, Admin, Classrooms & Lab Complex				**622**
1	School of Computer Engg + furniture+ Acs	5 x 35,000	84	
2	School of Mechanical Engg+ furniture+ Acs	5 x 35,000	84	
3	School of Chemical and Biosciences+ furniture+ Acs	5 x 35,000	84	
4	School of Humanities & Basic Sc.(first-year classes labs)	5 x 20,000	50	
5	School of Infrastructure and Planning+ furniture+ Acs+ Existing Bldg	5 x 25,000	60	
6	School of Earth and Environmental Sc.+ Furniture+ Acs	-	10	
7	School of Electrical Engg+ furniture+ Acs	-	14	
8	Office of VC (+ Admn, Fin. Exam)	5 x 25,000	60	
9	Classroom Complex+ furniture+ Acs	5 x 40,000	88	
10	Laboratory Complex+ furniture+ Acs	5 x 40,000	88	
RESIDENCES Faculty & Staff				**400**
1	Faculty Residence: 500 qtrs: 1400 Sqft	7,00,000	280	
2	Non-teaching Staff: 250 qtrs: 1200 Sqft	3,00,000	120	
HOSTELS for 7100 students				**575**
1	1000 Capacity 7 Hostels @ 80 Cr per Hostel	-	560	
2	50-room married accommodation	50x450	10.4	
3	50-room Foreign students	50x200	4.6	
CAPEX for Academic Elements				**153**

1	Fab Lab and state-of-art Workshop (CNC m/c, Laser cutters, 3D printers, lathe, drilling)	50,000	20	
2	Library Complex, 2000 seating	40,000	16	
3	Establishment of **CoEs (**Equipment, Software)		70	
4	Training & Placement Complex, Online Exam – 1000, 10 rooms for Interview, Gallery – 500	30,000	12	
5	Central Research Facility (CRF)	25,000	10	
6	Convention Centre, Gallery halls – 2000, 1000	60,000	25	
CAPEX for Co-Curricular and Extra-Curricular Amenities			**134**	
1	Auditorium (6000 Students), @10,000/-	30,000	30	
2	Students Activity Centre	60,000	24	
3	Food Complex Cum Shopping Centre (5x200 Seats)	25,000	10	
4	Guest House with 100 rooms (20 suits)	50,000	20	
5	Indoor and outdoor Sports facilities (5000 Students) @5000/-	1,00,000	50	
RENOVATION of old buildings and laboratories:			**56**	
1	Repair of 6 old hostels (65 yrs old)		6	
2	Repair of the academic building		25	
3	Upgradation of aged outdated Lab equipment		25	
CAPEX for additional Components:			**60**	
1	Land Grading, Roads, Drains, Horticulture	-	50	
2	Dedicated 33 KV Power Supply	-	10	
	Grand Total		**2000**	**2000**

8. CONCLUDING REMARKS

The undiluted teaching ethics, great learning culture, alumni performance, and competitive attitude of the students have earned VSSUT (formerly UCE) its place among the ivy club of IITs, NITs, IISc, or IIEST Shibpur – despite the fact that it is a State-funded institution. In Odisha, it is the only Government Engineering Institute that has a NIRF rank of 111 (only Govt institute behind NIT Rourkela and IIT Bhubaneswar).

When State is poised for unprecedented growth in industry and economy under the leadership of our visionary Chief Minister, VSSUT aspires to play a key role in this growth story by becoming a multi-disciplinary University (MERU). It envisions to be a **Factory** not only for Engineers but also to become a **Skill Development Centre** for ITIs & Diplomas of the zone for improvement in their employability and entrepreneurship. Further, it wants to become a **Diagnostic Centre for** the Industries, a breeding ground for **Low-Cost Revolutionary** products, and a **Nodal Centre** for developing schemes for Rural and Urban Odisha.

ANNEXURE- 1

Programs Offered at VSSUT at present

A. **4 Years B.Tech. Programme (Full Time) (All AICTE Approved)**

SL#	Name of the branch	Year of Starting	Sanctioned Intake				
			Intake	GIN*	TFW	LE***	Total
1.	Civil Engineering A	1956	90+30*	02	06	9+3*	140
2.	Chemical Engineering	2014	60	-	03	6	69
3.	Computer Science & Engineering A	1994	30+30*	01	03	3+3*	69
4.	Electrical Engineering A	1956	120	02	06	12	140
5.	Electrical & Electronics Engineering	2010	30+30*	-	03	3+3*	69
6.	Electronics & Telecomm. Engineering A	1972	120	02	06	12	140
7.	Information Technology A	2003	60*	-	03	6	69
8.	Mechanical Engineering A	1956	120	03	06	12	141
9.	Metallurgical & Materials Engineering	2013	60	-	03	6	69
10.	Production Engineering A	1996	30+30*	-	03	3+3*	69
TOTAL			**840**	**10**	**42**	**84**	**976**

(* *Self-sustaining programme **GIN – Govt. of India Nominee*

*** *LE – Lateral Entry of Diploma holders in 2nd year. A NBA Accredited TFW – Tuition Fee Waiver*)

B. **5 Years B.Arch. Programme (Full Time)**

SL#	Name of the branch	Year of Starting	Sanctioned Intake				
			Intake	GIN*	TFW	LE***	Total

1.	Architecture		2013	20	-	-	-	20

C. **5 Years Integrated UG & PG Dual Degree Programme (Dropped wef 2022)**

SL#	Department	Name of the Specialisation	Year of Starting	Sanctioned Intake
1.	Civil Engineering	B.Tech. in Civil Engg & M.Tech. in Structural Engg.	2015	18
2.	Electrical Engg.	B.Tech. in Electrical Engg. & M.Tech. in Power System Engg.	2015	18
TOTAL				**36**

D. **2 years M.Sc. Programme (Full Time)**

SL#	Name of the Course	Specialisation	Year of Starting	Sanctioned Intake
1.	M.Sc. (Physics)	Applied Physics	2010	18
2.	M.Sc. (Chemistry)	Industrial Chemistry/ Organic Chemistry	2010	36
3.	M.Sc. (Mathematics)	Applied Mathematics	2011	18
TOTAL				**72**

E. **5 Years Integrated M.Sc. Programme (Full Time)**

SL#	Name of the Specialisation	Year of Starting	Sanctioned Intake
1.	Chemistry	2013	18
2.	Physics	2014	18
3.	Mathematics	2015	18
TOTAL			**54**

F. **3 Years MCA Programme (Full Time)**

SL#	Name of the Specialisation	Year of Starting	Sanctioned Intake
1.	Master in Computer Applications	1993	30

G. **2 Years M.TECH. Programmes (Full Time)**

SL#	Department	Name of the Specialisation	Year of Starting	Sanctioned Intake
1.	Civil Engineering	Water Resources Engg A *	1969	18
		Structural Engineering A *	1969	18
		Transportation Engineering *	1975	18
		Geo-technical Engineering *	2012	18
		Environmental Science & Engineering	2012	18
2.	Electrical Engg.	Power System Engineering A *	1969	18
		Power Electronics Control & Drives *	2011	18
		Control & Instrumentation *	2015	18
3.	Mechanical Engg.	Machine Design & Analysis A *	1972	18
		Heat Power Engineering *	1972	18
		Production Engineering A *	1972	18
4.	Electronics & Telecomm. Engg.	Communication Systems A *	1995	18
		VLSI Signal Processing *	2012	18
		Microwave Engineering	2015	18
5.	Computer Science & Engg.	Computer Science & Engg. A *	2008	18
6.	Production Engg.	Manufacturing Systems Engineering *	2008	18
		Robotics & CAD-CAM*	2015	18
7	Information Technology	Information & Communication Technology *	2013	18
		Computer & Information Technology*	2018	18
8	Metallurgical & Materials Engg.	Industrial Metallurgy	2020	18
* approved **TOTAL**		AICTE		**360**

H. **Ph. D. Programme**

SL#	Branch	Year of Starting
1.	Architecture	2018
2.	Chemical Engineering	2017
3.	Chemistry	2010
4.	Civil Engineering	2010
5.	Computer Application	2016
6.	Computer Science & Engineering	2010
7.	Electrical Engineering / EEE	2010
8.	Electronics & Telecomm. Engineering	2010
9.	Humanities	2015
10.	Information Technology	2015
11.	Mathematics	2010
12.	Mechanical Engineering	2010
13.	Metallurgy & Materials Engineering	2015
14.	Physics	2010
15.	Production Engineering	2010

I. **Executive B. Tech. Programme (Only One Batch)**

SL#	Name of the Executive B.Tech. Programme	Name of the Departments	Year of Starting	No. of Student Enrolled
1.	Power Engineering	Electrical Engineering Mechanical Engineering	2017	15
2.	Manufacturing and Process Engineering	Metallurgy & Materials Engineering Production Engineering	2017	15
TOTAL				**30**

ANNEXURE – 2

Detail Expansion Plan

A. **SCHOOLS, Admin Bldg, Classroom Complex, Laboratory Complex: 622 Crores**

Each schools will have Gallery Hall Classrooms, Laboratory Rooms, Centres of Excellence, Chambers for Professors & Lab Equipment, Central AC, furniture, gadgets like computer, scanner, printer.

Sl#	School	Size	Area in ft2	Cost per ft2	Cost INR Cr	Lab/ AC / Furniture INR Cr
1	School of Computer Engg	G + 4	5 x 35,000	4000	70	14
2	School of Mechanical Engg	G + 4	5 x 35,000	4000	70	14
3	School of Chemical and Biosciences	G + 4	5 x 35,000	4000	70	14
4	School of Infrastructure and Planning	G + 4 + Existing Bldg.	5x25,000	4000	50	10
5	School of Humanities & Basic Science(first-year classes, labs)	G + 4	5x20,000	4000	40	10
6	Office of VC (+ Admn, Fin. Exam)	G + 4	5 x 25,000	4000	50	10
7	Classroom Complex	G + 4	5 x 40,000	4000	80	08
8	Laboratory Complex	G + 4	5 x 40,000	4000	80	08
9	School of Earth and Environmental Sc.	Existing Bldg.	-	-	-	10
10	School of Electrical Engg	Existing Bldg.	-	-	-	14
	Total		-		**510**	**112**

B. **RESIDENCES for Faculty & Staff : 400 Crores**

Sl#	Item	Nos of quarters	Ft2 per room	Total Area	Cost per ft2	Cost in INR Cr
1	Faculties	500	1400	700,000	4000	280

2	Non-teaching Staff	250	1200	300,000	4000	120
	Total					**400**

C. **Hostel for 7100 students** (hostel rooms exist for 3300 students): **575 Crores**

SI#	School	Nos of rooms	Ft2 per room	Total Area(*)	Cost per ft2	Cost in INR Cr
1	1000 Capacity 7 Hostels @ 80 Cr per Hostel	-	-	-	-	560
2	50-room married accommodation	50	450	25,875	4000	10.4
3	50-room Foreign students	50	200	11,500	4000	4.6
	Total					**575**

Considering 15% additional space for common use, e.g, Common Room, TV room, Washrooms

D. **CAPEX for Academic Elements: 153 Crores**

SI#	Item	Capacity	Plinth area ft2	Total INR Cr
1	Fab Lab and state-of-art Workshop (CNC m/c, Laser cutters, 3D printers, lathe, drilling)		40,000	20
2	Library Complex	2000 seating	40,000	16
3	Establishment of **CoEs** (Equipment, Software)			70
4	Training & Placement Complex	Online Exam – 1000, 10 rooms for Interview, Gallery – 500	25,000	12
5	Central Research Facility (CRF)		25,000	10
6	Convention Centre	Gallery halls – 2000, 1000	50,000	25
	Total			**153**

E. **CAPEX for Co-Curricular and Extra-Curricular Amenities: Rs. 134 Crores**

SI	Item	Capacity	Plinth area ft2	Total INR Cr
1	Auditorium	6000	30,000 @Rs. 10000	30
2	Students Activity Centre		60,000	24
3	Food Complex Cum Shopping Centre	5x200 seat	25,000	10
4	Guest House	100 rooms 20 suits	50,000	20
5	Indoor and outdoor Sports facilities	5000	100,000 @5000	50
	Total			**134**

F. **Renovation of old buildings and laboratories: Rs. 56 Crores**

SI	Particulars	Estimate in Rs Cr
1	Repair of 6 old hostels (65 yrs old)	6
2	Repair of the academic building	25
3	Upgradation of aged outdated Lab equipment	25
	Total	**56**

G. **CAPEX for additional Components: Rs. 60 Crores**

SI#	Particulars	Cost in Crore
1	Land Grading, Roads, Drains, Horticulture	50
2	Dedicated 33 KV Power Supply	10
	Total	**60**

Implementation Plan

A. **PHASE I:** (July 2022-December 2025)

Sl#	Particulars	Cost in (Crs)
1	School of Computer Engg	84
2	School of Mechanical Engg	84
3	School of Chemical and Biosciences	84
4	School of Infrastructure and Planning	60
5	School of Humanities and Social Sciences	50
6	Office of VC (+ Admn, Fin. Exam)	60
7	Classroom Complex	88
8	Laboratory Complex	88
9	Residences for teaching (400) and non-teaching staff (200)	320
10	Hostels and dining space	475
11	Renovation of old Hostels, Academic Infrastructure, and Equipment	48
12	Roads, land Grading, Dedicated Power Supply	55
	TOTAL	**1496**

After Phase I construction, 740 UG seats will be increased in first-year admission in academic session 2026-27. Lateral Entry (LE) seats will be increased by 120 seats in academic session 2027-28.

B. **PHASE II:** (July 2025-December 2027)

Sl#	Particulars	Cost in (Crs)
1	Setting up of COEs (Equipment)	60
2	CAPEX for Academic Elements	23
3	Residential houses for teaching (100) and non-teaching (50) staff	80
4	Hostels and dining space	100
5	School of Electrical Engg (Furniture + Equipment etc.)	14
6	School of Earth & Environmental Sc. (Furniture + Equipment etc.)	10
5	CAPEX for Co-Curricular and Extra Curricular Amenities	64
	TOTAL	**351**

After phase II construction, 400 seats will be increased in academic session 2028-29.

C. **PHASE III:** (July 2027-July 2029)

Sl#	Particulars	Cost in (Crs)
1	Setting up of COEs (Equipment)	10
2	CAPEX for Co-Curricular and Extra Curricular Amenities	70
3	CAPEX for Academic Elements	60
4	Renovation of Old Bldgs and laboratories	08
5	Roads, land Grading, Dedicated Power Supply	05
	Total	**153**

The Institutional Development Plan (IDP), having received the blessing of the Honorable Chief Minister of Odisha, is now poised for action. In the initial phase, the Industrial Development Corporation of Odisha (IDCO) has set forth a tender for infrastructure enhancement. A vigilant committee oversees the execution of this plan. Additionally, the Department of Skill Development and Technical Education, as the parent entity within the Odisha government, conducts monthly reviews to ensure the successful realization of this transformative endeavor.

10.1.3 Governing body, administrative setup, functions of various bodies, service rules, procedures, recruitment and promotional policies (10)

Institute Marks : 10.00

List of Members of the Board of Management of VSSUT, Burla

Sl. No.	Name & address	Position	Nature of Membership
1	Prof. Bansidhar Majhi, Vice Chancellor, VSSUT, Burla	Chairman	Ex-officio
2	Smt. Usha Padhee, IAS, Principal Secretary to Government of Odisha, Skilled Development & Technical Education Department, Government of Odisha, Bhubaneswar	Member	-do-
3	The Director, Technical Education & Training, Odisha, Killa Maidan, Buxibazar, Cuttack - 1	Member	-do-
4	Additional Secretary to Govt. (ES-II) Finance Department, Govt. of Odisha, BBSR.	Member	-do-
5	Hon'ble Vice-Chancellor, Biju Pattnaik University of Technology, Odisha, Rourkela	Member	-do-
6	Shri Pradeep Dang, OAS (S) Registrar, VSSUT,Burla	Convenor-Cum-Secretary	-do-
7	Prof. Chintamani Mahapatra, Centre for Canadian, US& Latin American Studies School of International Studies, Jawaharlal Nehru University, New Delhi	Member	Nominee of UGC
8	Dr. Damodar Acharya, DN Oxy Park, Tower-II, 16th Floor, Flat No.2173, Dumduma, Bhubaneswar - 751019	Member	Nominee of AICTE
9	Prof. Debadutta Mishra , Professor in Prod. Engg.,VSSUT, Burla.	Member	Nominee of VC (Seniority-cum-rotation basis among Professors)
10	Prof. Sidharth Panda, Professor of Electrical Engg. VSSUT, Burla	Member	Academic Council Nominee
11	Prof. Sanjay Kumar Patro, Professor of Civil Engg. VSSUT, Burla	Member	Academic Council Nominee
12	Prof. S Karmalkar, Director, IIT, Bhubaneswar	Member	Chancellors Nominee(Reputed Institute)
13	Er. Ashesh Padhy, VP & Head-Project, JSW Paradip Steel Project.	Member	Chancellors Nominee(Alumni)
14	Prof. Sukumar Mishra, Professor in Electrical Engg., IIT, Delhi	Member	Chancellors Nominee(Alumni)
15	Shri Sarada Prasad Nayak, M.L.A, At-C/136, Sector-1, P.S. Sector-1	Member	Nominee of Odisha Legislative Assembly

Sl. No.	Name & address	Position	Nature of Membership
16	Shri Sudam Marndi, M.L.A, Bija7yaramchandrapur, Ward No. 17., Bhanjpur, Dist- Mayurbhanaj	Member	Nominee of Odisha Legislative Assembly

	Member of Academic Council	
	Ex-officio member as per clause No.21-2a (i) of VSSUT Act 2008	
1.	Prof. Bansidhar Majhi, Vice-Chancellor (http://vssut.ac.in/vice-chancellor-s-message.php)	Chairman
	Ex-officio members as per clause No.21-2a (ii) of VSSUT Act 2008	
2	Dean, Academic Affairs	Member Secretary
3	Dean, PGS&R	Member
4	Dean, SRIC	Member
5	Dean, CDCE	Member
6	Dean Students Welfare	Member
7	Dean, Faculty & Planning	Member
8	Dean, Alumni & International Relations	Member
9	Dean, School of Chemical & Bio-Sciences	Member
10	Dean, School of Computer Sciences	Member
11	Dean, School of Electrical Science	Member
12	Dean, School of Humanities & Basic Science	Member
13	Dean, School of Infrastructure & Planning	Member
14	Dean, School of Mechanical Sciences	Member
15	HOD, Chemical Engineering	Member
16	HOD, Civil Engineering	Member
17	HOD, Computer Sc. & Engineering	Member
18	HOD, Electrical Engineering	Member
19	HOD, Electrical & Electronics Engineering	Member
20	HOD, Electronics & TC Engineering	Member
21	HOD, Information Technology	Member
22	HOD, Mechanical Engineering	Member
23	HOD, Metallurgical & Materials Engg.	Member
24	HOD, Production Engineering	Member
25	HOD, Architecture	Member
26	HOD, Chemistry	Member
27	HOD, Mathematics	Member
28	HOD, Physics	Member
29	HOD, Humanities	Member

30	HOD, Computer Application	Member
31	Controller of Examination	Member
Ex-officio members as per clause No.21-2a (iii) of VSSUT Act 2008		
32	Prof. P.C. Swain, Professor, Civil Engg.	Member
33	Prof. B. B. Pati, Professor, Electrical Engg.	Member
34	Prof. R. K. Sahu, Professor, Electrical & Electronics Engg.	Member
35	Prof. Sanjay Agrawal, Professor, Electronics & TC Engg.	Member
36	Prof. H.S. Behera,Professor, Information Technology	Member
37	Prof. P.R.Dash, Professor Mechanical Engg.	Member
38	Prof. S.K. Badjena, Professor, Metallurgical & Materials Engg.	Member
39	Prof. D. Mishra, Professor, Production Engg.	Member
40	Prof. P.K. Kar, Professor, Chemistry	Member
41	Prof. S. K. Paikray, Professor,Mathematics	Member
42	Prof. Ganeswar Nath, Professor, Physics	Member
Ex-officio members as per clause No.21-2a (iv) of VSSUT Act 2008		
43	Dr. Debabrata Giri, Associate Professsor, Civil Engg.	Member
44	Dr. Kishore Kumar Sahu, Assistant Professor, Information Technology	Member
45	Sri Sanjib Kumar Nayak, Assistant Professor, Computer Application	Member
Members as per clause No.21-2b (i), (ii), (iii) of VSSUT Act 2008		
46	Prof. Niord Chandra Sahoo, Professor of Electrical Sciences, IIT, Bhubaneswar	Member
47	Prof. Kishanjit Kumar Khatua, Professor of Civil Engg., NIT, Rourkela	Member
48	Prof. Tushar Kumar Nath, Professor of Civil Engg., IGIT, Sarang	Member
Members as per clause No.21-2b (iv) of VSSUT Act 2008		
49	Mr. Saroj Kumar Panda, Regd. No. 2002090001, B.Tech, Mechanical Engg.	Member
50	Mr. Suraj Kumar Pal, Regd. No. 2002070039, B.Tech, Electronics & TC Engg.	Member
51	Ms. Swarnaprabha Dehury, Regd. No. 2205100006, M.Tech, MME	Member
52	Mr. Tanmaya Kumar, Regd. No. 2002090138, B.Tech, Mechanical Engg.	Member
External academic council members		
53	Prof. N. C. sahoo, Prof, Electrical sciences, IIT BBSR	External Member
54	Prof. K. K. Khatua, Prof Civil Engg, NIT RKL	External Member
55	Prof. T. K. Nath, Prof Civil engg, IGIT Sarang	External Member

Frequency of the meetings: Twice in a year and special meetings under obligations.

The information related to the frequency of the meetings; and attendance therein, minutes of the meetings and action-taken reports are available at https://www.vssut.ac.in/proceedings.php (https://www.vssut.ac.in/proceedings.php)

The published rules including service rules, policies and procedures available and disseminated to all stake holders and public at

VSSUT Act: https://vssut.ac.in/doc/VSSUT_ACT.pdf (https://vssut.ac.in/doc/VSSUT_ACT.pdf)

VSSUT Statute: https://vssut.ac.in/doc/VSSUT-Statute.pdf (https://vssut.ac.in/doc/VSSUT-Statute.pdf)

10.1.4 Decentralization in working and grievance redressal mechanism (5)   Institute Marks : 5.00

ADMINISTRATION AT VSSUT, BURLA

01.	The Vice-Chancellor	Prof. Banshidhar Majhi (https://www.vssut.ac.in/administration.php)
02.	The Registrar	Shri Pradeep Dang
03.	The Comptroller of Finance	Sri Tularam Kalet, OFS-1 (SB)
04.	The Controller of Examinations	Dr. Achyut Kumar Panda (https://vssut.ac.in/faculty-profile.php?furl=achyut-kumar-panda)
05.	The Librarian	Dr. (Mrs.) Archita Nanda
06.	The Dean of the Students' Welfare	Prof. Sanjaya Kumar Patro (https://www.vssut.ac.in/faculty-profile.php?furl=sanjaya-kumar-patro-arch)
07.	The Dean, Academic Affairs	Prof. Sanjay Agrawal (http://www.vssut.ac.in/faculty-profile.php?furl=sanjay-agrawal)
08.	The Dean, Post-Graduate Studies & Research	Prof. Himanshu Sekhar Behera (https://vssut.ac.in/faculty-profile.php?furl=himanshu-sekhar-behera)
09.	The Dean, Faculty & Planning	Prof. Ramakanta Panigrahi
10.	The Dean, Alumni & International Relations	Dr. Anil Kumar Kar (http://www.vssut.ac.in/faculty-profile.php?furl=anil-kumar-kar)
11.	The Dean, Centre for Distance and Continuing Education	Prof. Saroj Kumar Sarangi (https://www.vssut.ac.in/administration.php)
12.	The Dean, Sponsored Research & Industrial Consultancy	Prof. Sukalyan Dash (https://www.vssut.ac.in/administration.php)
13.	HOS, School of Computer Sciences	Prof. Himanshu Sekhar Behera (https://vssut.ac.in/faculty-profile.php?furl=himanshu-sekhar-behera)
14.	HOS, School of Infrastructure & Planning	Prof. Sudhanshu Sekhar Das
15.	HOS, School of Mechanical Sciences	Prof. Debadutta Mishra
16.	HOS, School of Electrical Science	Prof. Sidhartha Panda
17.	HOS, School of Humanities & Basic Science	Prof. Jayaprakash Panda
18.	HOS, School of Chemical & Bio-Sciences	Prof. Jayadev Rana (http://www.vssut.ac.in/faculty-profile.php?furl=jaydev-rana)
19.	Medical Officer (on deputation from Government of Odisha)	Vacant
20.	Maintenance Engineer	Prof. Ramkrishna Dandapat (http://vssut.ac.in/faculty-profile.php?furl=ramkrishna-dandapat)
21.	Workshop Superintendent	Dr. Rabindra Behera
22.	Physical Training Instructor	Vacant
23.	Director, IQAC	Prof. Amarnath Nayak (https://www.vssut.ac.in/administration.php)
24.	Director, TBI, (VSSUT - ASSIST)	Prof. Debadutta Mishra (http://www.vssut.ac.in/faculty-profile.php?furl=debadutta-mishra)
25.	Coordinator , TEQIP - III	Prof. Amar Nath Nayak (http://vssut.ac.in/faculty-profile.php?furl=amar-nath-nayak)
26.	H.O.D., Architecture	Dr. Bharati Mohapatra (http://vssut.ac.in/faculty-profile.php?furl=bharati-mohapatra)
27.	H.O.D., Chemical Engineering	Dr. Pankaj Charan Jena (http://vssut.ac.in/faculty-profile.php?furl=pankaj-charan-jena)
28.	H.O.D., Chemistry	Dr. Trinath Biswal (https://vssut.ac.in/faculty-profile.php?furl=trinath-biswal)
29.	H.O.D., Civil Engineering	Dr. Rakesh Roshan Dash (https://vssut.ac.in/faculty-profile.php?furl=rakesh-roshan-dash)
30.	H.O.D, Computer Application	Dr. Satyabrata Das (https://vssut.ac.in/faculty-profile.php?furl=satyabrata-das)

31.	H.O.D., Computer Sc. & Engg.	Dr. Suvasini Panigrahi (https://vssut.ac.in/faculty-profile.php?furl=suvasini-panigrahi)
32.	H.O.D., Electrical Engineering	Dr. Papia Ray (http://www.vssut.ac.in/faculty-profile.php?furl=papia-ray)
33.	H.O.D, Electrical & Electronics Engineering	Dr. Santi Behera (https://vssut.ac.in/faculty-profile.php?furl=santi-behera-el)
34.	H.O.D., Electronics & TC Engineering	Prof. Harish Kumar Sahoo (http://vssut.ac.in/faculty-profile.php?furl=harish-kumar-sahoo)
35.	H.O.D., Humanities	Dr. Jayaprakash Paramguru (http://vssut.ac.in/faculty-profile.php?furl=jayaprakash-paramaguru)
36.	H.O.D., Information Technology	Dr. Pradip Kumar Sahu (http://vssut.ac.in/faculty-profile.php?furl=pradip-kumar-sahu)
37.	H.O.D., Mathematics	Dr. Mahendra Kumar Jena (http://vssut.ac.in/faculty-profile.php?furl=mahendra-kumar-jena)
38.	H.O.D., Mechanical Engineering	Dr. Sumanta Panda (http://vssut.ac.in/faculty-profile.php?furl=sumanta-k-panda)
39.	H.O.D., Metallurgy & Materials Engineering	Dr. Sushant Kumar Badjena (http://vssut.ac.in/faculty-profile.php?furl=sushant-kumar-badjena)
40.	H.O.D., Physics	Dr. Ganeswar Nath (https://vssut.ac.in/faculty-profile.php?furl=ganeswar-nath)
41.	H.O.D., Production Engineering	Dr. Arun Kumar Rout (http://vssut.ac.in/faculty-profile.php?furl=arun-kumar-rout)
42.	PIC, Training & Placement	Prof. Prasanta Nanda
43.	PIC, Alumni Relation	Dr. Sanjay Agrawal (http://www.vssut.ac.in/faculty-profile.php?furl=sanjay-agrawal)
44.	PIC, Canteen Committee	Prof. Trinath Biswal (https://vssut.ac.in/faculty-profile.php?furl=trinath-biswal)
45.	PIC, Central Computing Facility	Prof. Arunanshu Mahapatro (http://www.vssut.ac.in/faculty-profile.php?furl=arunanshu-mahapatro)
46.	Coordinator, Central Research Facility	Dr. Saroj Ku. Sarangi (https://www.vssut.ac.in/faculty-profile.php?furl=saroj-kumar-sarangi)
47.	PIC, Central Library	Dr. Sunanda Kumari Patri (https://www.vssut.ac.in/administration.php)
48.	PIC, Central Stores & Purchase	Dr. S.K. Paikray (https://www.vssut.ac.in/administration.php)
49.	PIC, Central Transport Facility	Dr. Rabindra Behera
50.	PIC, Civil Maintenance	Dr. Debabrata Giri (https://www.vssut.ac.in/faculty-profile.php?furl=debabrata-giri)
51.	PIC, e-Abhijoga & MO SARKAR	Prof. Manoranjan Pradhan (http://www.vssut.ac.in/faculty-profile.php?furl=manoranjan-pradhan)
52.	PIC, Electrical Maintenance	Dr. Deepak Kumar Lal (http://vssut.ac.in/faculty-profile.php?furl=deepak-kumar-lal)
53.	PIC, Examinations	Dr. Kishore Kumar Sahu (https://www.vssut.ac.in/administration.php)
54.	PIC, Guest House	Prof. Nilamani Bhoi (http://vssut.ac.in/faculty-profile.php?furl=nilamani-bhoi)
55.	PIC, House Allotment	Prof. Sudhanshu Sekhar Das (https://vssut.ac.in/faculty-profile.php?furl=sudhanshu-sekhar-das)
56.	PIC, Automation	Dr. G.R. Shial (https://www.vssut.ac.in/administration.php)
57.	PIC, Convocation	Prof. S.S. Das (https://www.vssut.ac.in/administration.php)
58.	PIC, CRF	Dr. T.R. Mohapatra (https://www.vssut.ac.in/administration.php)
59.	PIC, Horticulture	Prof. Pandaba Patro (https://vssut.ac.in/faculty-profile.php?furl=pandaba-patro)
60.	PIC, Industry-Institute Interaction	Prof. A.N. Nayak (https://www.vssut.ac.in/administration.php)

61.	PIC, Innovation	Prof. D. Mishra (https://www.vssut.ac.in/administration.php)
62.	INO, Scholarship	Dr. Sumitra Kisan (https://www.vssut.ac.in/administration.php)
63.	PIC, Lawns & Gardens	Dr. Lipika Parida (https://www.vssut.ac.in/administration.php)
64.	PIC, Land Settelment	Prof. S. Agrawal (https://www.vssut.ac.in/administration.php)
65.	PIC, Nua-O Scheme for skilling	Dr. Sasmita Behera (https://www.vssut.ac.in/administration.php)
66.	PIC, Security	Dr. G.R. Biswal (https://www.vssut.ac.in/administration.php)
67.	PIC, Public Relations	Prof. Priyaranjan Mohapatra (https://www.vssut.ac.in/faculty-profile.php?furl=priyaranjan-mohapatra)
68.	PIC, Telephones	Dr. Pankaj Charan Jena
69.	PIC, Time Table & IPR Cell	Prof. Sarojrani Pattnaik (https://vssut.ac.in/faculty-profile.php?furl=sarojrani-pattnaik)
70.	PIC, University Seminar	Prof. Sasmita Acharya (https://vssut.ac.in/faculty-profile.php?furl=sasmita-acharya)
71.	Assistant Controller, Examination	Mr. Suresh Srichandan (https://www.vssut.ac.in/administration.php)
72.	Assistant Controller Examination & PIC, NAD	Dr. Bibhuti Prasad Sahoo (https://www.vssut.ac.in/administration.php)
73.	Assistant Controller Examination & PIO, RTI	Dr. D.C. Rao (https://www.vssut.ac.in/administration.php)
74.	CTO,NCC	Dr. Aditya Kumar Hota (https://www.vssut.ac.in/administration.php)
75.	Head, Innovation Center	Prof. Debadutta Mishra (http://www.vssut.ac.in/faculty-profile.php?furl=debadutta-mishra)
76.	Chairman, Estate Committee	Prof. Sudhanshu Sekhar Das (https://vssut.ac.in/faculty-profile.php?furl=sudhanshu-sekhar-das)
77.	Chairperson, ICC	Prof. Sucheta Panda (http://www.vssut.ac.in/faculty-profile.php?furl=sucheta-panda)
78.	First Appellate Authority, RTI	Prof. S.S. Das (https://www.vssut.ac.in/administration.php)
79.	PIO, RTI Cell	Dr. Ashok Kumar Sahoo (http://vssut.ac.in/faculty-profile.php?furl=ashok-kumar-sahoo)
80.	QIP (Govt. of India)	Prof. Piyush Ranjan Das (http://www.vssut.ac.in/faculty-profile.php?furl=piyush-ranjan-das)
81.	Faculty Branch Counselor, IEEE Student Chapter	Dr. Harish Kumar Sahoo (http://www.vssut.ac.in/faculty-profile.php?furl=harish-kumar-sahoo)
82.	Faculty Advisor, ASME Student Chapter	Dr. Kiran Kumar Ekka (http://www.vssut.ac.in/faculty-profile.php?furl=kiran-kumar-ekka)
83.	ISTE Coordinator	Mr. Suvendu Narayan Mishra (http://www.vssut.ac.in/faculty-profile.php?furl=suvendu-narayan-mishra)
84.	CTO, National Cadet Corps	Dr. Birendra Kumar Barik (http://www.vssut.ac.in/faculty-profile.php?furl=birendra-kumar-barik)
85.	PIC, Mo College Abhijan & Coordinator NSS	Prof. A.K. Kar (https://www.vssut.ac.in/administration.php)
86.	NPS Coordinator	Mr. Suvendu Narayan Mishra (http://www.vssut.ac.in/faculty-profile.php?furl=suvendu-narayan-mishra)
87.	Vice President, Students' Cultural Society	Dr. Anil Kumar Kar (http://www.vssut.ac.in/faculty-profile.php?furl=anil-kumar-kar)
88.	Vice President, Students' Sports Society	Dr. Manas Ranjan Senapati (http://www.vssut.ac.in/faculty-profile.php?furl=manas-ranjan-senapati)
89.	Vice President, Students' Technical Society	Dr. Harish Kumar Sahoo (http://www.vssut.ac.in/faculty-profile.php?furl=harish-kumar-sahoo)
90.	Secretary, Alumni Association	Dr. Pradip Kumar Sahu (http://www.vssut.ac.in/faculty-profile.php?furl=pradip-kumar-sahu)

STUDENTS GRIEVANCE REDRESSAL

Student Grievance Redressal Committee (SGRC)

- Dean, Academic Affairs - Member-Convenor
- Dean, PGS & R - Member
- Dean, Faculty & Planning - Member
- Dean, CDCE - Member
- Dean, SRIC - Member
- Controller of Exams - Member

Note: In of case of any emergency, the aggrieved is free to go to Vice-Chancellor directly.

Dean, Students' Welfare, VSSUT has been appointed as the **'OMBUDSPERSON'** of the University. The 'OMBUDSPERSON' shall hear and decide the appeals of student(s) against the decision(s) of the **'Student Grievance Redressal Committee' (SGRC)**.

The above committee will only deal with student grievances that are not adhered in purview of Internal Complaints Committee, Anti-Ragging Committee, SC/ST Committee and Disciplinary committees.

The Committee can also address grievances from applicants to admission for various programs. The committee can address individual as well as collective grievances of the students of the University.

List of various level for addressing the issues on grievances are as under:-

Grievance	FIRST LEVEL	SECOND LEVEL	THIRD LEVEL
Particular Course Related	Concerned Heads	Dean Academic Affairs	**Student Grievance Redressal Committee' (SGRC)**
Academics Related	HoDs concerned/CoE	Dean Academic affairs	
Halls of Residences / Facilities Related	Asst Warden/Warden	Dean Student Welfare	
Mess affairs	Asst Warden/Warden	Dean Student Welfare	
Ragging	Warden/Dean Student welfare	Anti Ragging Cell	
Student Clubs/Societies	Faculty Advisor/Vice-President	Dean Student Welfare	
SC/ST Complaint	SC-ST Cell https://vssut.ac.in/doc/SCST_Cell_Edited_on_05-07-2020.pdf (https://vssut.ac.in/doc/SCST_Cell_Edited_on_05-07-2020.pdf)		
Sexual Harassment	Internal Complaints Committee https://www.vssut.ac.in/icc.php (https://www.vssut.ac.in/icc.php)		

10.1.5 Delegation of financial powers (5)   Institute Marks : 5.00

The financial powers delegated to the Vice chancellor, Registrar, The Comptroller of Finance, Deans, Heads of Departments, Hostel Wardens and relevant in-charges of the institution are explicitly mention in the VSSUT Act (https://vssut.ac.in/doc/VSSUT_ACT.pdf (https://vssut.ac.in/doc/VSSUT_ACT.pdf)) and Statute (https://vssut.ac.in/doc/VSSUT-Statute.pdf (https://vssut.ac.in/doc/VSSUT-Statute.pdf)).

10.1.6 Transparency and availability of correct/unambiguous information in public domain (5)   Institute Marks : 5.00

The correct/unambiguous information on policies, rules, processes to stakeholders is made transparently available in public domain at https://www.vssut.ac.in/ (https://www.vssut.ac.in/) (University website)

10.2 Budget Allocation, Utilization, and Public Accounting at Institute level (15)   Total Marks 15.00

:

Total Income at Institute level: For CFY,CFYm1,CFYm2 & CFYm3
CFY : (Current Financial Year),
CFYm1 : (Current Financial Year minus 1),
CFYm2 : (Current Financial Year minus 2) and
CFYm3 : (Current Financial Year minus 3)

Table 1 - CFY 2023-2024

Total Income 1574968398				Actual expenditure(till…): 1581031889				Total No. Of Students 4329	
Fee	Govt.	Grants	Other sources(specify) Interest, Overh	Recurring including salaries	Non Recurring	Special Projects/Anyother, specify Student events		Expenditure per student	
152511050	679020000	710990997	32446351	804296697	76735192	700000000		365218.73	

Table 2 - CFYm1 2022-2023

Total Income 1196173168				Actual expenditure(till…): 1243814199				Total No. Of Students 3968	
Fee	Govt.	Grants	Other sources(specify) Interest, Overh	Recurring including salaries	Non Recurring	Special Projects/Anyother, specify		Expenditure per student	
192880199	954760784	13225798	35306387	1096980395	146833804			313461.24	

Table 3 - CFYm2 2021-2022

Total Income 1157593002				Actual expenditure(till…): 1042726978				Total No. Of Students 3968	
Fee	Govt.	Grants	Other sources(specify) Interest, Overh	Recurring including salaries	Non Recurring	Special Projects/Anyother, specify		Expenditure per student	
183542101	923789000	5912187	44349714	867835246	174891732			262784.02	

Table 4 - CFYm3 2020-2021

Total Income 891416198				Actual expenditure(till…): 954597290				Total No. Of Students 4011	
Fee	Govt.	Grants	Other sources(specify) Interest, Overh	Recurring including salaries	Non Recurring	Special Projects/Anyother, specify		Expenditure per student	
229667807	610331000	6081266	45336125	807799836	146797454			237994.84	

Items	Budgeted in 2023-2024	Actual Expenses in 2023-2024 till	Budgeted in 2022-2023	Actual Expenses in 2022-2023 till	Budgeted in 2021-2022	Actual Expenses in 2021-2022 till	Budgeted in 2020-2021	Actual Expenses in 2020-2021 till
Infrastructure Built-Up	7100000	7767351	3084878	1277353	2608750	1699249	5700000	1249561
Library	1900000	8829028	2425000	7692601	1000000	5065050	1940000	1159821
Laboratory equipment	1793751	1014852	1240824	1185623	5445170	5329148	4688970	4466806
Laboratory consumables	2000000	1862485	1500000	2391752	7200000	1554830	7200000	2311030
Teaching and non-teaching staf	8980101	7071154	7924497	7798179	6955586	7707207	5560498	7544991
Maintenance and spares	7125000	1081280	2369000	1956028	1005000	4354794	1005000	3413486
R&D	5807420	5807420	1140587	1140587	8727112	8727112	8762183	8762183

Training and Travel	6500000	3177154	6200000	1668574	1500000	692831	1500000	401354
Miscellaneous Expenses*	2015000	8288349	2109250	2524572	1991000	4324284	2013600	1695092
Others, specify	4877472	3383211	3940280	3516366	2842664	4717092	2742664	3981967
Total	**1817429775**	**1566608479**	**976747958**	**1022538008**	**1047692542**	**1056783238**	**660913633**	**967178906**

10.2.1 Adequacy of budget allocation (5)

Institute Marks : 5.00

The University prepares budgets under the head Plan & Non-plan for all the departments based on the minimum requirement. The budget is bi-annually submitted to Govt. for their consideration. The Accounts Section of the University also provides the budget for salary of both teaching and non teaching staff members under non-plan head.
The statutory Finance Committee prepares the annual budget placing emphasis on research, academic development programs, and infrastructure development as per issued directives. Once the submissions are received from all departments and schools, the budget is finalized based on past experience and anticipated future projects.

10.2.2 Utilization of allocated funds (5)

Institute Marks : 5.00

The allocated funds have been utilized for the purchase of new laboratory equipment (computers), software, training and travel and other miscellaneous expenses for academic activity.

The utilization heads are detailed in the audited statements of accounts for each year. The budget amount is allocated for the creation of capital assets and to cover operational expenses according to budgetary guidelines. Capital assets encompass items such as laboratory equipment, study resources, and laboratory facilities. Operational expenses include salaries, research promotion, maintenance, spares, and other relevant expenditures.

The utilization certificate is regularly submitted to Govt. of Odisha after due utilization of funds every year.

10.2.3 Availability of the audited statements on the institute's website (5)

Institute Marks : 5.00

The funds released by the Govt. are fully utilized following the norms prescribed by the Govt. The funds received from the Govt. are subject to Local Fund and Comptroller and Auditor General (CAG) audit from time to time. Provision is made for uploading the audited statement in the University website at https://www.vssut.ac.in/ (https://www.vssut.ac.in/). https://vssut.ac.in/IQAC/documentspdf/AQAR-Report-2021-22.pdf (https://vssut.ac.in/IQAC/documentspdf/AQAR-Report-2021-22.pdf)

10.3 Program Specific Budget Allocation, Utilization (30)

Total Marks 30.00

Total Income at Institute level: For CFY,CFYm1,CFYm2 & CFYm3
CFY: (Current Financial Year),
CFYm1 : (Current Financial Year minus 1),
CFYm2 : (Current Financial Year minus 2) and
CFYm3 : (Current Financial Year minus 3)

Table 1 :: CFY 2023-2024

Total Budget 9499409		Actual expenditure (till…): 3101827		Total No. Of Students 624
Non Recurring	Recurring	Non Recurring	Recurring	Expenditure per student
3489778	6009631	1503825	1598002	4970.88

Table 2 :: CFYm1 2022-2023

Total Budget 5967483		Actual expenditure (till…): 5561429		Total No. Of Students 624
Non Recurring	Recurring	Non Recurring	Recurring	Expenditure per student
2414105	3553378	2273328	3288101	8912.55

Table 3 :: CFYm2 2021-2022

Total Budget 3657269		Actual expenditure (till…): 4916315		Total No. Of Students 624
Non Recurring	Recurring	Non Recurring	Recurring	Expenditure per student
1347870	2309399	1204519	3711796	7878.71

Table 4 :: CFYm3 2020-2021

Total Budget 3691689		Actual expenditure (till…): 2820506		Total No. Of Students 624
Non Recurring	Recurring	Non Recurring	Recurring	Expenditure per student
1307181	2384508	1134119	1686387	4520.04

Items	Budgeted in 2023-2024	Actual Expenses in 2023-2024 till	Budgeted in 2022-2023	Actual Expenses in 2022-2023 till	Budgeted in 2021-2022	Actual Expenses in 2021-2022 till	Budgeted in 2020-2021	Actual Expenses in 2020-2021 till
Laboratory equipment	1303108	737260	901423	861320	395576	387147	340640	324500
Software	108014	74410	96992	91057	54368	50101	65933	61260
Laboratory consumable	157719	142425	198193	182899	134193	118899	192020	176726
Maintenance and spares	5448529	826861	1811588	1495787	768529	333014	768529	261031
R & D	444097	444097	872214	872214	667367	667367	670049	670049
Training and Travel	497059	242959	474118	127597	114706	52981	114706	30692
Miscellaneous Expenses*	1540882	633815	1612956	1530555	1522529	1306806	1539812	1296247
Total	**9499408**	**3101827**	**5967484**	**5161429**	**3657268**	**2916315**	**3691689**	**2820505**

10.3.1 Adequacy of budget allocation (10)   Institute Marks : 10.00

At the onset of the financial year, each department and unit compiles budget needs classified into recurring and non-recurring categories. These allocations are subsequently determined according to the existing funds. Oversight of expenditure falls under the purview of the Comptroller of Finance, who has the authority to approve additional allocations for specific situations. The institution diligently tracks expenses to ensure vital requirements are fulfilled while upholding the institutions operational efficiency.

At the commencement of the academic session, the Heads of Departments are informed about the allocated funds for their budget proposals. This includes funding for significant projects such as construction, infrastructure upgrades, procurement and maintenance of utilities, and housekeeping etc.

10.3.2 Utilization of allocated funds (20)   Institute Marks : 20.00

At the onset of the academic session, all department heads receive notifications regarding the allocated funds for their budget proposals. The procurement of laboratory equipment, consumables are undertaken by the Head of Departments with due procedure mentioned in **VSSUT Act (https://vssut.ac.in/doc/VSSUT_ACT.pdf (https://vssut.ac.in/doc/VSSUT_ACT.pdf)) and Statute (https://vssut.ac.in/doc/VSSUT-Statute.pdf (https://vssut.ac.in/doc/VSSUT-Statute.pdf)).** Significant projects such as construction, infrastructure upgrades, procurement and maintenance of utilities, housekeeping, and furniture acquisition are overseen directly by the Comptroller of Finance in collaboration with the Heads of Schools, Deans and Registrar. The Head of the Department is provided with an imprest money to meet day to day expenses and the Departments manage their own imprest accounts.

10.4 Library and Internet (20)   Total Marks 20.00

10.4.1 Quality of learning resources (hard/soft) (10)

<div align="right">Institute Marks : 10.00</div>

Library overview

The library building is a three storied having area of 10,900 sq.m. The Ground floor is used for the Circulation Section, Stack area, Reprographic Section, and the General Book Bank. The first floor houses the Acquisition Section, Journal Section, Magazine & Newspaper section, and the Administrative Section of the Library. The top floor is used for E-resource Centre, Reference section, Text Book Section and SC/ST Book bank, Reading Room.

Available learning Print & e-Resources

- *Print Resources*

Print Resources	
Books Titles	10724
Books Volumes	68162
Periodicals	30
Bound Volume	9626
Theses, Dissertations	739

- *E-Resources*

e-Resources	
eBooks	Elsevier's Science Direct) World E-book Library South Asia Archive(SAA)
e-journal Database	Elsevier's Science Direct ISID JCCC
e-Journals	3563+

1. **Relevance of available learning resources including e-resources**

E-journals & Databases Collections

- **Elsevier's Science Direct :** 743 nos of e-journals
- **American Institute of Physics:** 19 e-journals on Physics, Chemistry, geoscience, engineering , acoustics and more.
- **Springer Link:** 1725 e-journals
- **Taylor & Francis:** 1078 e-journals
- **Institute for Studies in Industrial Development (ISID):**

    The On-Line Database Index covers 252 Indian social science journals covering the disciplines of economics, political science, public administration, sociology, social anthropology, business management, finance, geography, social work, health and education, etc and 15 newspapers.

- **JGate Pluss(JCCC):** Around 7900+ jounals

Bibliographic E-Database

- Scopus
- Web of Science

E-BOOKS

- 311 nos of Elsevier's Science Direct ebooks
- World e-book Library
- South Asia Archive (SAA)

Library Automation & Information Management Tools

- KOHA ILMS 17.4 : Library Automation Software
- D-Space Institutional Repository: 9626 bound volume journals are accessible to user.
- Turnitin iThenticate: Plagiarism Software
- DrillBit: Plagiarism Software
- IRINS VIDWAN Database: Research support service to users

2. **Library Services (Accessibility and Support to students for self learning activities):**

- Web OPAC is used by library patrons to search for materials without a librarians assistance. It is designed to be searched by title, author, subject, or keyword in an interface that is more user-friendly than the previous card catalog.
- Access to a wide range of physical and digital resources such as books, journals, databases, and multimedia materials.
- Assistance with information retrieval, including help with searching for and locating relevant sources for research projects.
- Reference services, where librarians are available to answer questions and provide guidance on research strategies.
- Interlibrary loan services (DELNET), allowing users to request materials from other libraries if they are not available in the universitys collection.
- Instructional sessions and workshops on topics such as information literacy, citation management, and research skills.
- Access to study spaces, computer workstations, and printing, scanning, and photocopying facilities.
- Online resources and services, including access to e-books, e-journals, and online databases, as well as virtual reference assistance.
- Research support services available to the users to enhance their research work through IRINS VIDWAN Database.
- Institutional Repository (Dspace): 9626 nos of bound volume journals are accessible to users.
- Access to the Lecture videos from NPTEL and other open course wares
- Access to the National Digital Library of India.

10.4.2 Internet (10)

Name of the Internet provider and Bandwidth: Currently 2 ISPs provider and bandwidth provided by the ISPs providers are as follows:

1Gbps Internet connectivity from BSNL

1Gbps Internet connectivity from SIFY

Currently VSSUT is having a dedicated internet connectivity of 2 Gbps.

Wi Fi availability:

The controller and access points are used in the Hostels of the University to provide uninterrupted internet access to the students for their academic and research work. Wi-Fi and LAN is provided to the academic and administrative buildings for faculty and staff members for their research and administrative work.

Networking: OFC / Ethernet connection from CIF Cell to all campuses. It is a secure network and each user has authentication for accessing our network. The networking switches are used at different campuses. The network backbone is illustrated as below.
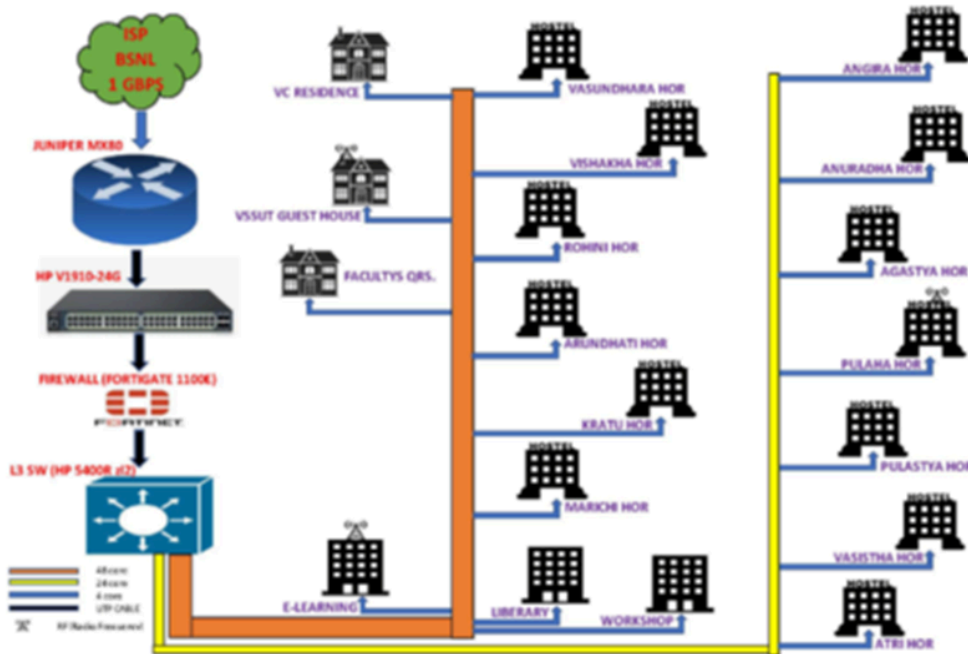
Security arrangements: As far as the security is concerned VSSUT provides the security at different levels of distribution to the client level. It has Core Layer switch, Firewall and CISCO controller for protecting students and staffs members from being affected from any DOA attack, hacking from outside and inside VSSUT. It also prevents malware and virus attacks. Intrusion Prevention System threat-detection, URL filtering, Web content filtering, application filtering and signature based filtering.

Annexure I
(A) PROGRAM OUTCOME (POs)

Engineering Graduates will be able to:

1. Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.

2. Problem analysis: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.

3. Design/development of solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.

4. Conduct investigations of complex problems: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

5. Modern tool usage: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.

6. The engineer and society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.

7. Environment and sustainability: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

8. Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

9. Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

10. Communication: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

11. Project management and finance: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

12. Life-long learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

<div align="center">

(B) PROGRAM SPECIFIC OUTCOME (PSOs)
Program should specify 2-4 program specific outcomes.

</div>

PSO1	Achieve excellence in thermal engineering, machine design, manufacturing systems and industrial engineering by acquiring knowledge in mathematics and basic science.
PSO2	To implement the learned principles of mechanical engineering to analyze, interpret and provide solutions to the real-life problems by using state-of-art facilities.
PSO3	Take-up career in industries or to pursue higher studies in mechanical and interdisciplinary programs with high regard for ethical values, environmental and social issues.

Declaration

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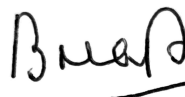
- I undertake that, the institution is well aware about the provisions in the NBA's accreditation manual concerned for this application, rules, regulations, notifications and NBA expert visit guidelines inforce as on date and the institutes hall fully abide by them.
- It is submitted that information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

Head of the Institute
Name : Prof. Banshidhar Majhi
Designation : Vice Chancellor, VSSUT
Signature :

Seal of The Institution :

Vice-Chancellor
V.S.S. University of Technology
Burla, Sambalpur, Odisha-768018

Place : Burla
Date : 06-03-2024 20:22:33