SELF ASSESSMENT REPORT

SUBMITTED TO

NATIONAL BOARD OF ACCREDITATION, NEW DELHI

BY

NAME OF PROGRAMME:

DIPLOMA IN MECHANICAL ENGINEERING

SCHOOL OF MANAGEMENT AND SCIENCES, PO KASIMPUR BIRUHA, GOSAIGANJ, LUCKNOW

Approved by All India Council for Technical Education

Affiliated to Board of Technical Education, Uttar Pradesh

SAR CONTENTS

Part A: Institutional Information

1. Name and Address of Institution: School of Management and Sciences,
PO Kasimpur Biruha, Gosaiganj,Lucknow.

2. Name and Address of the Directorate of Technical Education: Board of Technical Education, Uttar Pradesh

3. Year of Establishment: 2008.

4. Type of Institution: Affiliated

5. Ownership Status: Society

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

Name of the Institution	Year of Establishment	Programs of Study	Location
School of Management and Sciences, Varanasi	1995	Management	Varanasi, UP

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

S.No.	Name of Dept.	Name of Program	Year of Commencement	Intake Capacity	Increase in intake, if any	Year of increase	AICTE Approval	Accreditation Status
1	Diploma	Diploma in Mechanical Engineering	2013	60	120	2014	Yes	Applying first time
2	Diploma	Diploma in Civil Engineering	2013	60	NA	NA	Yes	Applying first time

7a. Accreditation History - Not Applicable

7b. Programs to be considered for Accreditation vide this application:

S.No.	Program Name
1	Diploma in Mechanical Engineering
2	Diploma in Civil Engineering

8. Total number of Employees:

A. Regular Faculty and Staff:

Items		CAYm1 (2018-19)		CAYm2 (2017-18)		CAYm3 (2016-17)	
		Min	Max	Min	Max	Min	Max
Faculty in Engineering and Technology	M	13	13	13	13	13	13
	F	1	1	1	1	2	2
Faculty in Sciences and Humanities	M	8	8	7	7	6	6
	F	2	2	2	2	2	2
Non-teaching Staff	M	9	9	8	9	6	8
	F	0	0	0	0	0	0

List of Faculty and staff is attached on page number 5.

B. Contractual Staff: Not Applicable

9. Total number of students:

Items	CAYm1 (2018-19)	CAYm2 (2017-18)	CAYm3 (2016-17)
Total no. of boys	216	199	195
Total no. of girls	4	0	3
Total no. of students	220	199	198

10. Contact Information of the Head of the Institution and NBA Coordinator:

i. Head of the Institution:

Name: Dr. Manoj Mehrotra

Designation: Director

Mobile No.: 9919777701

Email id: director@smslucknow.com

ii. NBA Coordinator:

Name: Mr. Adhir Tandon

Designation: HOD

Mobile No.: 9839505081

Email id: adhir@smslucknow.com

LIST OF EMPLOYEES WORKING IN THE SCHOOL OF MANAGEMENT AND SCIENCE, LUCKNOW

ACADEMIC YEAR : 2016-2017

S.No.	Faculty Name	Qualification and Department
1	Ms. Sujata Sinha	MA (English)
2	Mr. Sachin Mishra	M.Sc. (Maths)
3	Dr. Abhiram Shukla	Ph.D. (Maths)
4	Mr. Vinay Yadav	M.Sc. (Physics)
5	Mr. Dharmesh Srivastava	MA (English)
6	Mr. Pankaj Kumar Yadav	M.Tech
7	Mr. Gaurav Kumar Ojha	M.Tech
8	Mr. Krishna Gopal Sinha	M.Tech
9	Mr. Ankit Singhal	B.Tech
10	Ms. Priti Singh	M.Tech
11	Mr. Jitendra Kumar Kannaujiya	B.Tech
12	Mr. Rahul Katiyar	B.Tech
13	Mr. Anoop Kumar Singh	M.Tech
14	Mr. Akhilesh Kumar Verma	B.Tech
15	Mr. Amit Kumar Singh	B.Tech
16	Ms.Arpita Asthana	B.Tech
17	Mr. Neeraj Kumar Yadav	B.Tech
18	Mr. Amit Kumar Singh	M.Tech
19	Mr. Ajhrudin Ansari	B.Tech
20	Mr. Vivek Saraswat	M.Tech
21	Dr. Manoj Mehrotra	Ph.D. (Marketing)
22	Dr. Rachana Kumari	Ph.D. (Managerial Economics)
23	Mr. Priyank Srivastava	M.Tech

ACADEMIC YEAR : 2017-2018

S.No.	Faculty Name	Qualification and Department
1	Ms. Sujata Sinha	MA (English)
2	Mr.Ashish Kumar Pandey	MA (English)
3	Mr. Sachin Mishra	M.Sc. (Maths)
4	Dr. Abhiram Shukla	Ph.D. (Maths)
5	Mr. Vinay Yadav	M.Sc. (Physics)
6	Dr. Shri Prakash Mishra	Ph.D. (Chemistry)
7	Mr. Dharmesh Srivastava	MA (English)
8	Mr. Pankaj Kumar Yadav	M.Tech
9	Mr. Gaurav Kumar Ojha	M.Tech
10	Mr. Gyanendra Kumar Yadav	M.Tech
11	Mr. Chandan Kumar	M.Tech
12	Mr. Krishna Gopal Sinha	M.Tech
13	Mr. Aditya Prakash Yadav	M.Tech
14	Mr. Ankit Singhal	B.Tech
15	Mr. Yusuf Khan	M.tech
16	Mr. Anurag Singh	M.Tech
17	Ms. Priti Singh	M.Tech
18	Mr. Jitendra Kumar Kannaujiya	B.Tech
19	Mr. Rahul Katiyar	B.Tech
20	Mr. Anoop Kumar Singh	M.Tech
21	Mr. Ajhrudin Ansari	B.Tech
22	Dr. Manoj Mehrotra	Ph.D. (Marketing)
23	Dr. Rachana Kumari	Ph.D. (Managerial Economics)
24	Mr. Priyank Srivastava	M.Tech

ACADEMIC YEAR : 2018-2019

S.No.	Faculty Name	Qualification and Department
1	Ms. Sujata Sinha	MA (English)
2	Mr.Ashish Kumar Pandey	MA (English)
3	Mr. Sachin Mishra	M.Sc. (Maths)
4	Dr. Abhiram Shukla	Ph.D. (Maths)
5	Mr. Vinay Yadav	M.Sc. (Physics)
6	Dr. Shri Prakash Mishra	Ph.D. (Chemistry)
7	Mr. Dharmesh Srivastava	MA (English)
8	Mr. Shiva Arun	M.Sc. (Chemistry)

9	Mr. Pankaj Kumar Yadav	M.Tech
10	Mr. Gaurav Kumar Ojha	M.Tech
11	Mr. Gyanendra Kumar Yadav	M.Tech
12	Mr. Chandan Kumar	M.Tech
13	Mr. Krishna Gopal Sinha	M.Tech
14	Mr. Aditya Prakash Yadav	M.Tech
15	Mr. Ankit Singhal	B.Tech
16	Mr. Yusuf Khan	M.tech
17	Mr. Anurag Singh	M.Tech
18	Ms. Priti Singh	M.Tech
19	Mr. Jitendra Kumar Kannaujiya	B.Tech
20	Mr. Anoop Kumar Singh	M.Tech
21	Mr. Adhir Tandon	M.Tech
22	Mr. Ajhrudin Ansari	B.Tech
23	Dr. Manoj Mehrotra	Ph.D. (Marketing)
24	Dr. Rachana Kumari	Ph.D. (Managerial Economics)
25	Mr. Priyank Srivastava	M.Tech

LIST OF STAFF

2016-17	
S.No.	**Name of Staff**
1	Mr. Arun Kumar Singh
2	Mr. Chandrika Prasad Sharma
3	Mr. Sanjeev Kumar Srivastava
4	Mr. Ashok Kumar Yadav
5	Mr. Babu Deep Chandra
6	Mr. Vinod Vishwakarma
7	Mr. Dhirendra Misra
8	Mr. Ashendra Kumar Singh

2017-18	
S.No.	**Name of Staff**
1	Mr. Arun Kumar Singh
2	Mr. Chandrika Prasad Sharma
3	Mr. Sanjeev Kumar Srivastava
4	Mr. Babu Deep Chandra
5	Mr. Vinod Vishwakarma

6	Mr. Dhirendra Misra
7	Mr. Saroj Kumar
8	Mr. Kiran Kumar
9	Mr. Raj Pratap Yadav

2018-19	
S.No.	**Name of Staff**
1	Mr. Arun Kumar Singh
2	Mr. Chandrika Prasad Sharma
3	Mr. Sanjeev Kumar Srivastava
4	Mr. Babu Deep Chandra
5	Mr. Vinod Vishwakarma
6	Mr. Dhirendra Misra
7	Mr. Saroj Kumar
8	Mr. Kiran Kumar
9	Mr. Raj Pratap Yadav

PART-B

Criterion 1	Vision, Mission and Program Educational Objectives

1.1 VISION AND MISSION

The Vision of SMS, Lucknow

To become a constantly growing center of excellence nurturing global centric professional leadership based on ethical and moral attributes.

The Mission of SMS, Lucknow

To create excellent learning ambience through innovation in teaching, research and consultancy for producing professionals capable of answering global challenges, demonstrating high ethical and moral standards.

The Vision of department of Mechanical Engineering is:

To become a constantly growing center of excellence for producing Mechanical Engineering professional who are competent to the industrial requirement and providing leadership quality based on ethical and moral attributes.

The Missions of department of Mechanical Engineering are:

- To create excellent learning ambience through innovation in teaching, training and consulting in order to produce industry capable professionals.
- To provide high ethical and moral standards and responsibility for serving the society.
- To collaborate with Mechanical industries for internship programs, technical communications and interactions with professional bodies for workshops and seminars.
- To develop communication, technical and design skills among the students through training sessions.
- To develop academic performance of students and provide employment enhancement training for better placement potential.

1.2 Program Educational Objectives (PEO's)

The Program Educational Objectives (PEOs) of the department of Mechanical Engineering are given below:

PEO1: To prepare the students as per the standard of mechanical industries and provide extensive knowledge of science and engineering for a successful career.

PEO2: To develop ability of students such that they can implement knowledge for creativity and product design.

PEO3: To provide sound knowledge of engineering, science and mathematics in order to analyze engineering problems.

PEO4: To develop team work and leadership quality capability among the students.

PEO5: To provide software as well as machinery skills to the students for better career and to prepare them for higher studies.

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

The Vision and Mission of the Mechanical Engineering Department are the foundation for its activities and the entire program offered by the Department follow these.

1.3.1 Indicate how and where the vision and mission are published and disseminated

College website: www.smslucknow.com

HOD Chamber

Notice Board of the Department

Library

Department Laboratories

Department Corridor

1.3.2 State how and where the PEOs are published and disseminated

The PEOs are published and disseminated through

College website: www.smslucknow.com

HOD Chamber

Notice Board of the Department

Library

Department Laboratories

Department Corridor

1.3.3 List the stakeholders of the program

Internal Stakeholders

Management

Faculty Members

Non-teaching Staff

Students

External Stakeholder

Parents

Employers

Industries

Alumni

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

1.4.1 Process of defining Vision and Mission of the Department

The Vision and Mission were discussed at the departmental level and were established through following process:

1. Information collected for the internal and external stakeholders by conducting meetings.
2. Based on our expertise and resources available, most critical areas were summarized and listed.
3. Assessment committee reviewed the areas pointed by the stakeholders.
4. Departmental meeting were conducted to bring a strong and meaningful Vision of the department.
5. Missions of the department were finalized on the basis of innovation, professional career, higher education, creativity and life-long learning.

Following is the flow chart for the process of defining Vision and Mission of the Department.

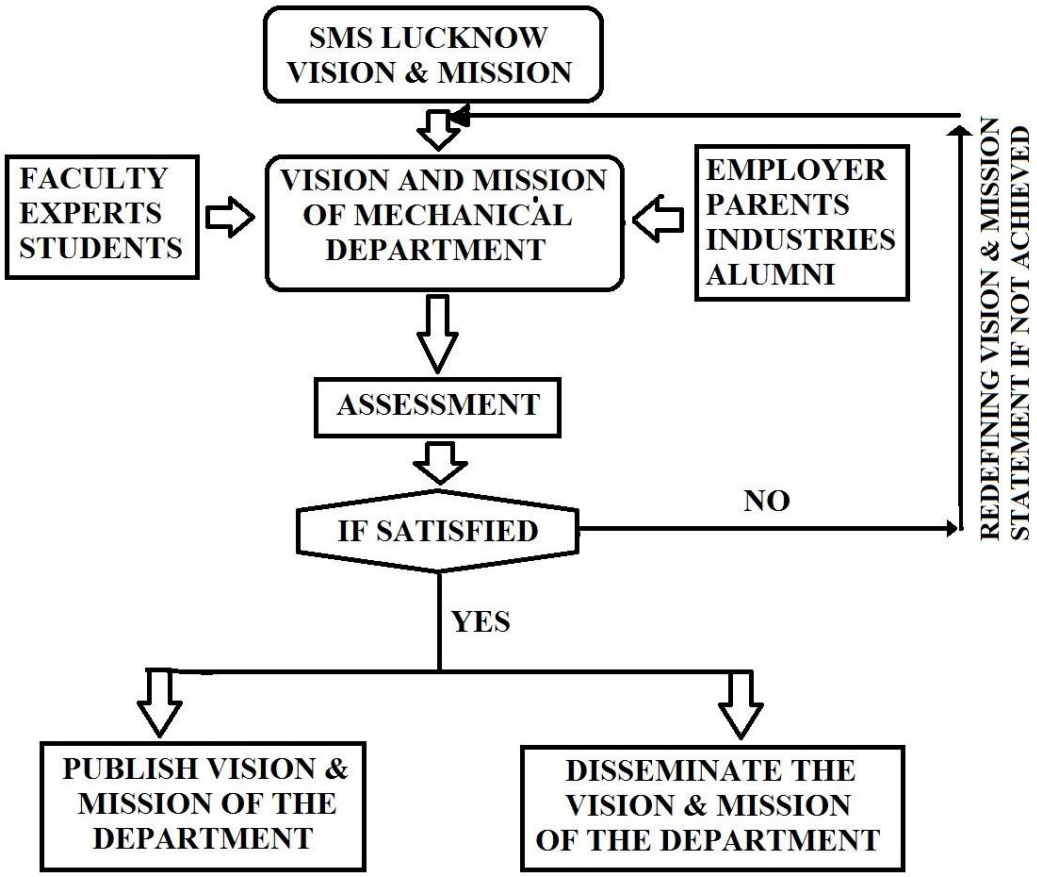


Figure 1: Process of defining Vision and Mission of Mechanical Engineering Department

1.4.2 State the process of establishing the PEOs

While considering the Vision and Mission of SMS, Lucknow and Mechanical Engineering Department, following method was adopted to establish PEOs of the Mechanical Engineering Department:

1. In accordance with NBA, the PEOs of Mechanical Engineering Department collected with the help of internal and external stakeholders and developed to be consistent with the Vision and Mission of the institution and department.
2. The PEOs were reviewed and approved by the Assessment Committee.

The process of establishing PEOs is shown in the following flow chart.

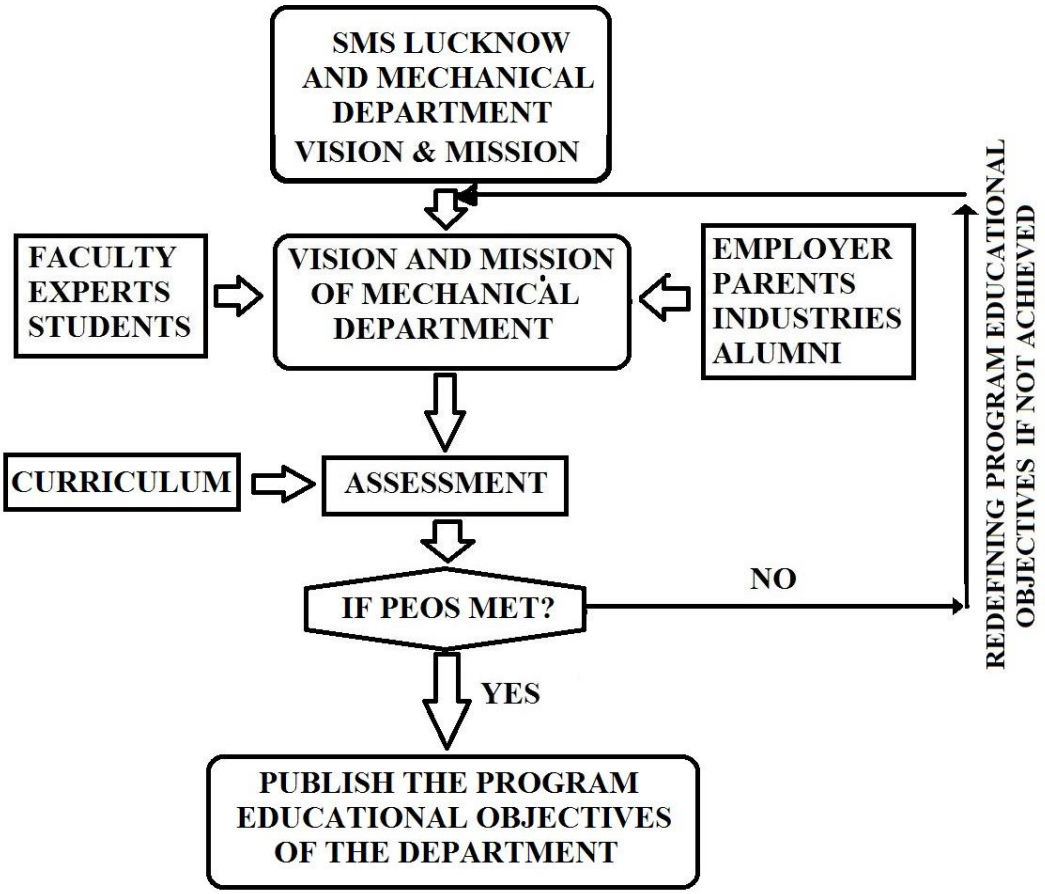


Figure 2: Process of defining PEOs of Mechanical Engineering Department

1.4.2.1 Following are the various assessment process used to assess the attainment of PEOs.

Lecture Plan

Lecture Schedule

Syllabus and Curriculum

NBA- Quality Cell

Students Feedback

Faculty Feedback

Employers Feedback

Workshops/Seminars/Guest Lectures

1.5 Establishing consistency's of PEO's with Mission of the Department

M1= To create excellent learning ambience through innovation in teaching, training and consulting in order to produce industry capable professionals

M2= To provide high ethical and moral standards and responsibility for serving the society

M3= To collaborate with Mechanical industries for internship programs, technical communications and interactions with professional bodies for workshops and seminars.

M4= To develop communication, technical and design skills among the students through training sessions.

M5= To develop academic performance of students and provide employment enhancement training for better placement potential

PEO1: To prepare the students as per the standard of mechanical industries and provide extensive knowledge of science and engineering for a successful career.

PEO2: To develop ability of students such that they can implement knowledge for creativity and product design.

PEO3: To provide sound knowledge of engineering, science and mathematics in order to analyze engineering problems.

PEO4: To develop team work and leadership quality capability among the students.

PEO5: To provide software as well as machinery skills to the students for better career and to prepare them for higher studies.

PEO Statement	M1	M2	M3	M4	M5
PEO 1	3	2	3	3	2
PEO 2	3	3	3	3	2
PEO 3	3		3	2	2
PEO 4		3	3	2	3
PEO 5	3	2	3	3	2

1: Slight (low) 2: Moderate (medium) 3: Substantial (high)

1.5.1 Justify the academic factors involved in achievement of the PEO's

Following are the factors that are involved in achieving the PEO's.

- Syllabus and Curriculum
- Lecture Plan
- Lecture Schedule
- Course File
- Assessment
- Feedback

Syllabus and Curriculum

The various courses for each program were chosen in accordance with the PSOs of the program. Both regular and elective course were mapped along with the attainment of PSO and were distributed among various semesters of the course. The syllabus of the course is designed in line with the principles of outcome based education and achievement of PSOs.

Lecture Plan

The syllabus and curriculum will be effective only if a well planned lecture process is followed. In order to achieve this, the lecture plans are prepared by faculties well before commencement of the classes that include both theory and lab courses. This lecture plan is duly signed by the head of department and director and discussed in the meeting before commencement of the classes.

Lecture Schedule

The course content of each lecture delivered by each faculty is scheduled according to the topics. Details of content to be covered in a lecture on a particular date is prepared well before commencement of the classes and duly checked and signed by the director.

Course File

A course file of each theory course is maintained in order to keep track of all the activities carried out in the lecture room during delivery of the lecture. This include time table, lecture

plan, lecture schedule, record of content delivered, previous year question papers, assignments, class tests, performance analysis and remedial action. Performance analysis and remedial action provide the faculty to monitor the performance of students. This course file is duly monitored by head of department and maintained in department library and serves as a reference to faculty handling the subject.

Assessment

The performance of the students is evaluated by assessment carried through three mid semester assessments followed by an end semester examination for every course. The assessment marks are displayed to the students after every test and also properly maintained. The internal assessments are uploaded on BTE, UP website by each course teacher.

Feedback

The NBA QAC is an integral part of the system that assures the achievement of PEOs. This team monitors the quality of entire process of each course.

1.5.2. Explain how administrative system helps in ensuring the attainment of PEOs

The following administrative setup is kept so as to enable attainment of PEOs

NBA QAC

Program Coordinator

Program Co-Coordinator

Department Assessment Committee Program

National Board of Accreditation Quality Assurance Cell (NBA QAC)

1. Plans development and delivery of PEOs and POs.
2. Prepare assessment plan to assess PEOs and POs attainment.
3. Guides and monitor every department committee.
4. Assess the availability of resources in order to achieve PEOs and POs of each course.
5. Analyze the assessment, initiate corrective actions for revising PEOs and POs.

Program Coordinator

1. Interaction with stake holders, faculty, students and employer.
2. Monitoring the academics of the each year of the program with program co-coordinator.
3. Schedules the work plan according to program objectives and outcomes.
4. Reviews the operation and coordination of activities for optimum running of the system.
5. Conducts and interpret various surveys required to assess the PEOs and Pos.

Program Co-Coordinator

1. Coordinate and monitors faculty teaching in particular course.
2. Assess the course objectives and outcomes.
3. Facilitates guest lectures, workshops, seminars, FDP in order to meet course outcomes.
4. Result analysis of particular course and initiates request to program coordinator for necessary action.

Department Assessment Committee

1. Monitors the attainment of the PEOs and POs.
2. Evaluation of program effectiveness and proposing necessary changes.
3. Preparing periodic reports on program activities, status and progress.
4. Motivating faculty towards publications, workshops, projects and FDP.
5. Interacts with students, faculty, program coordinator, course coordinator to facilitate PEOs.

Department Assessment Committee List

S.No.	Name	Position Held	Responsibilities
1	Dr. Manoj Mehrotra	NBA Coordinator	NBA In-charge
2	Mr. Adhir Tandon	HOD	Department In-charge
3	Mr. S.A.H.Rizvi	Course Outcome, Program Outcome, Program Specific Outcome	Formulation of attainment
4	Mr. Pankaj Yadav	Continuous Improvement	Attainment of PO and PSO

Various Committee in charge of Department

S.No.	Committee	In charge
1	Time Table	Mr. Gyanendra Yadav
2	Mentor	Mr. Adhir Tandon
3	Internal Test Cell	Mr. Rahul Singh
4	Website Over All	Mr. Praveen Singh
5	Departmental Website	Mr. Anoop Kumar Singh
6	Symposium/Workshop/Conference	Mr. Adhir Tandon
7	Professional Bodies	Mr. S.A.H.Rizvi
8	Slow Learner/Rank Holder	Mr. K.G. Sinha
9	First Year Coordinator	Mr. Pankaj Yadav
10	Second Year Section A Coordinator	Mr. Rahul Singh
11	Second Year Section B Coordinator	Mr. Raj Pratap Yadav
12	Third Year Coordinator	Mr. Gyanendra Kumar Yadav
13	Placement	Mr. Dheeraj Kumar
14	Industrial Visit	Mr. Anoop Kumar Singh
15	Newsletter	Mr. Rahul Singh
16	Cultural	Mr. Gaurav Ojha
17	Sports	Mr. Gaurav Ojha
18	Alumni	Mr. Chandan Kumar
19	Student Seminar/ Mini Projects	Mr. K.G. Sinha
20	Overall Lab Coordinator/ Project	Mr. K.G. Sinha

CRITERION 2	Program Curriculum And Teaching-Learning Processes

2.1 Program Curriculum

2.1.1 State the process used to identify extent of compliance of the curriculum for attaining the Program Outcomes (POs) and Program Specific Outcomes (PSOs) as mentioned in Annexure I. Also mention the identified curriculum gaps, if any.

A. Process used to identify extent of compliance of the BTE Curriculum for attaining the Program Outcomes and Program Specific Outcomes.

The Schools of Management and Sciences Technical Campus, Lucknow is affiliated to Board of Technical Education, Uttar Pradesh. Hence our program curriculum is as per the scheme and syllabus of the BTE, UP. Basically the Curriculum maintains balance in content of general science, humanities and other professional courses in order to attain the CO's/PO's.

Gap analysis is performed in order to cover the "Contents Beyond Syllabus".

Process of Gap Analysis

1. The concerned subject faculty undergoes a thorough study of the curriculum and syllabus and after conducting meeting with other subject faculties, a common criteria is generated where the relation between various subjects is discussed. Discussion of curriculum gaps and their solution is done.

2. The present scenario of the industries and advances are recognized. In accordance, workshops, industrial visits, seminars, guest lectures, training sessions are planned.

3. After the analysis, necessary contents are added accordingly.

LIST OF PROGRAM OUTCOMES

PO1	Engineering Knowledge: Ability to apply knowledge of basic mathematics, science and engineering in order to solve Mechanical Engineering problems.
PO2	Discipline Knowledge: Ability to apply specific discipline knowledge so as to solve broadly defined Mechanical Engineering problems.
PO3	Experiments and Practice: Ability to conduct standard tests and experiments to analyze and interpret the results.
PO4	Engineering Tools: Ability to apply techniques, tools and skills of Mechanical

	Engineering to describe engineering technology activities.
PO5	The Engineer and Society: Express knowledge to analyze societal, safety, health, cultural and legal issues.
PO6	Environment and Sustainability: Demonstrate knowledge and need of sustainable development while understanding the influence of engineering solutions on environment.
PO7	Ethics: Apply ethical principles and commit to professional ethics as well as responsibilities and norms of engineering practice.
PO8	Individual and team work: Function effectively as an individual, and as a member or leader in diverse/multidisciplinary teams.
PO9	Communication: An ability to apply oral, written and graphical communication in both technical and non-technical environments and ability to use appropriate technical literature.
PO10	Life-long learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the context of technological changes.

LIST OF PSO's

PSO1	The program must demonstrate the understanding of principles to Design, Fabricate, Test, operations and working of basic mechanical systems and processes.
PSO2	Ability to design, test, evaluate and implement society needed products and utilize in manufacturing or processing such quality products with highest environment safety.

The process used to identify extent of compliance of BTE,UP curriculum to attain POs and PSOs are

1. Categorize the Courses
2. Map each category with POs and PSOs
3. Identify COs for each subject
4. Map each CO with POs and PSOs
5. On the basis of all CO-POs and PSOs mapping, map the subject with POs and PSOs

B. List the "Curriculum Gap Analysis" for attainment of POs and PSOs

Process for "Curriculum GAP ANALYSIS"

Courses were analyzed for curriculum gaps using following steps:

1. Review from faculty handling the subject.
2. Review from the Employers.

3. Feedbacks from the Industrial Experts.
4. Feedbacks from the Placement Cell.
5. Feedback from the Management.
6. Feedback from the Alumni.

After the gap analysis, workshops, seminars, training sessions are planned for the students to fill the gap in the curriculum and attain the COs/POs. If the gap analysis is not satisfactory, reanalysis is performed.

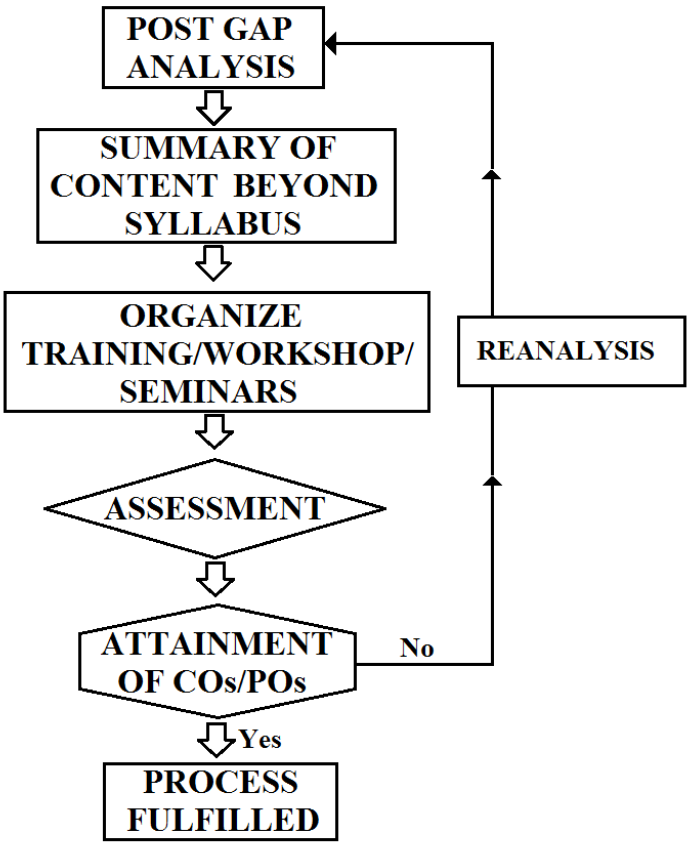


Figure 3. Process of assessment of Gap Analysis

Identified Curriculum Gaps

1. The Diploma Mechanical Engineering (Production) curriculum has certain gaps like knowledge of CAM, CAD, etc which are not covered in the curriculum but are required by present industry. They are taught in the regular class by allocating workshops.
2. Personality development of the students is focused as it is a most vital virtue for a

professional. PDP training and other essential skills such as stress management, interview techniques, importance of team work etc. are delivered to the students by inviting experts in respective fields.

3. Employment enhancement training is also provided to the students for better placement potential.

CAY (2018-19)

S.No.	Gap	Action Taken	Date-Month-Year	Resource Person	Mode	No. of students present	Relevance to POs & PSOs
1	Personality Development	Expert used to take lectures and train the students	Jun-19	Mr. Dharmesh Srivastava and Ms. Sujata Sinha	Internal	All students of third year	PO9, PO10
2	AutoCAD	Expert used to take lectures and train the students	April 2019	CADD Center	External	All students of third year	PO2, PO3, PO4, PO6, PO10, PSO1, PSO2
3	Employment Enhancement	Expert used to take lectures and train the students	Jun-19	Ms. Sujata Sinha and Mr. Ashish Pandey	Internal	All students of third year	PO8, PO9, PO10

CAYm1 (2017-18)

S.No.	Gap	Action Taken	Date-Month-Year	Resource Person	Mode	No. of students present	Relevance to POs & PSOs
1	CAD	Expert used to take lectures and train the students	4/16/2018 - 5/11/2018	Mr. Rahul Pandey of Softron Institute	External	34	PO2, PO3, PO4, PO6, PO10, PSO1, PSO2
2	Personality Development	Expert used to take lectures and train the students	Jun-18	Mr. Dharmesh Srivastava and Ms. Sujata Sinha	Internal	All students of third year	PO9, PO10

3	Employment Enhancement	Expert used to take lectures and train the students	Jun-18	Ms. Sujata Sinha and Mr. Ashish Pandey	Internal	All students of third year	PO8, PO9, PO10

CAYm2 (2016-17)

S. No.	Gap	Action Taken	Date-Month-Year	Resource Person	Mode	No. of students present	Relevance to POs & PSOs
1	Personality Development	Expert used to take lectures and train the students	Jun-17	Mr. Dharmesh Srivastava and Ms. Sujata Sinha	Internal	All students of third year	PO9, PO10
2	Employment Enhancement	Expert used to take lectures and train the students	June-2017	Ms. Sujata Sinha and Mr. Ashish Pandey	Internal	All students of third year	PO8, PO9, PO10

2.1.2.

B. Delivery details of content beyond syllabus

- Training of CAD software
- Training of CNC machines
- Training for placement and interviews
- Personality Development Program
- Projects
- Guest Lectures
- Workshops
- Seminars
- Industrial Visits
- Employment Enhancement Training

C. Mapping of content beyond Syllabus with the PO's & PSO's

PO'sTopics	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PSO1	PSO2
Training of CAD software								√	√	√	√	√
Training of CNC machine		√	√					√	√	√	√	√
Training for placement and interview							√	√	√		√	
Personality Development Program							√	√	√	√		
Projects	√	√	√	√	√	√					√	√
Guest Lectures	√	√		√	√	√		√			√	
Workshops	√	√	√	√						√	√	√
Seminars	√	√	√	√							√	
Industrial Visits	√	√				√					√	√
Employment Enhancement Training				√		√	√	√	√	√		

2.2 Teaching Learning Process

2.2.1 Describe processes followed to improve quality of teaching and learning

A. Adherence to Academic calendar:

From the BTE, UP calendar of events an institutional calendar of events is derived which is followed by all departments. Diploma Mechanical Engineering (Production) department adhere to the academic calendar.

Department calendar of events like seminars, workshops, guest lectures, etc which is specific to the department was prepared well before the commencement of the classes.

The academic calendar of the institute and department is notified to the students at the beginning of the academic session.

B. Use of various instructional planning and delivery methods:

The subjects are allotted to the faculty well before commencement of classes to prepare lecture plan, lecture schedule, lab plan and notes.

The whole syllabus is divided accordingly in the lecture plan and lecture schedule such that it can get completed on time.

The attendance of the students is maintained in the individual attendance register. The attendance register also contains the lecture plan and lecture schedule of the particular subject duly signed by HOD and Director.

The faculty use chalk and board and audio visual aids for teaching. Students are also encouraged to actually interact during the lecture hour by getting the doubts clarified on the spot. faculty using models , charts for interactive teaching

Lecture plan and lecture schedule with course objectives and course outcomes are prepared by the subject handling faculty before the commencement of the semester and is dually approved by the Head of the Department and made available to the students. According to the lecture plan and lecture schedule, work done has been inculcated in the academic file to ensure coverage of syllabus dually monitored by Head of the department.

All the faculty maintains a course file for concerned subject. The course file contains following items:

1. Syllabus
2. Lecture Plan
3. Lecture Schedule
4. Class Test Papers
5. Students sessional exam marks
6. Previous Year Question papers
7. Assignments

Question banks are prepared for each subject considering the nature of previous year BTE, UP question papers.

Real time projects are given to final year students and they are guided by the department faculties.

Assignments are given to the students for better performance.

Tutorials and remedial classes are conducted for week students as per the analysis based on their performance in the internal sessional exams.

Guest lectures and seminars on the current industrial trends are performed regularly from the industry persons.

Motivate and guide the students for higher studies.

Technical quiz and activities are conducted for the students and they are also motivated to participate in extra-curricular activities of other colleges.

Industrial visits are conducted twice in a semester to reduce the gap between industry and institute.

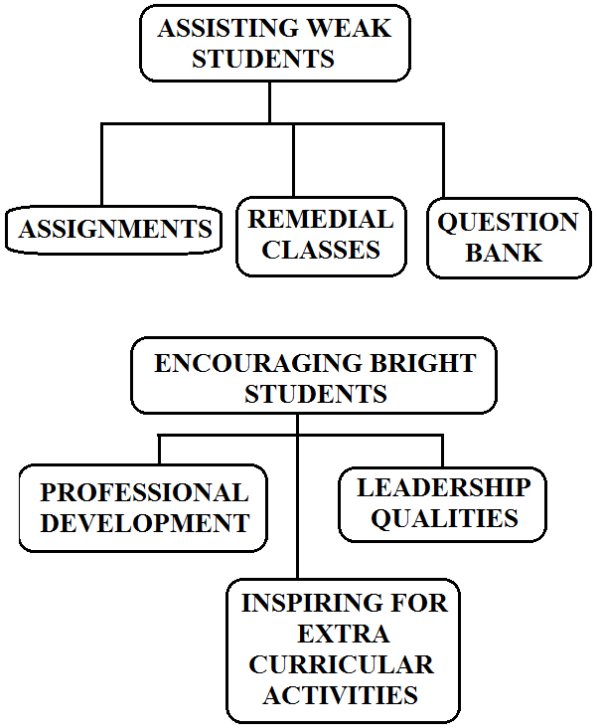
Workshops are organized to help the students to understand concepts beyond curriculum.

C. Methodologies to support weak students and encourage bright students:

The Class Coordinators acts as mentor and regularly conduct meetings regarding progress of their mentees and are in-charge to recognize students who have scored less than 60% marks in their internals sessional exams. Under the direction of HOD, the Class Coordinator evaluates the progress sheet of those students who have scored below 60% marks in three or more subject and have attendance below 75% are recognized as weak students and same is also intimated to their parents though meeting of through phone call.

Bright students are motivated to take part in technical quizzes, projects competitions, etc at college and inter-college level.

Weaker students of the class are identified on the basis like communication gap, lack of interest, language barriers etc. and the class coordinator supports their students by arranging extra remedial lectures, providing question banks, assignments, etc.



D. Quality of classroom teaching:

The following innovative teaching methods are adopted by the faculty:

- Department follows curriculum prescribed by BTE, UP for teaching and learning process.
- Faculty members take advantage of sources like National Programme on Technology Enhanced Learning (NPTEL), internet sources for effective teaching.
- Department Library contains various books for reference such that effective and quality lecture can be delivered.
- Well structured lesson plans and schedules are prepared for all theory and practical subjects that are scrutinized by both HOD and Director and made available in the website for student's access.
- Computer, projector, and multimedia and internet facility are used for teaching purposes and internet facility is available for students and faculty.
- Proper notes are provided to the students by concerned subject faculty.

E. Conduct of Experiments:

Laboratory provides the students with practical skills. In addition to that the students are trained as to how to perform the practical, collect the reading, analyze the data as per the scientific principles and interpret the drawings and conclusions. The theoretical scientific principles are tested through conduction of the experiments. Most of the PO's are attained by the conduction of experiments.

The department of Mechanical Engineering is equipped with necessary and sufficient Labs and equipments to carry out the experiments of BTE,UP curriculum.

The BTE,UP laboratory manuals are used to conduct the practical which describes in detail about the expected course objectives and the intellectual, motor skills to be developed through each of the experiment.

For some of the courses where BTE,UP has not provided any manual, the course faculty prepares the manual wherever it is felt necessary on the same guidelines as that of BTE,UP.

Faculty may conduct 1 or 2 experiments more than the specified list, but within the scope of the course.

All the experiments and readings are checked and verified by faculty and record books are maintained accordingly. The marks are awarded systematically according to the students performance.

F. Continuous Assessment in laboratory:

- Continuous assessment system is implemented for assessing the laboratory work. The assessment is done through submission of laboratory manuals, understanding of the experiment through oral viva voce questions and participation in performing the experiment.
- Neatness of the lab record book is also given weightage during assessment.
- Each practical is assessed for maximum of 10 marks.
- Term Work and presentation for each practical made by candidates shall be assessed on following parameters.
- Continuous assessment is done based on the norms prescribed by BTE,UP.
- Students are encouraged to do the self-assessment of the skills acquired after each practical.
- Justification of marks awarded to the student for specific experiments are discussed at the request of students when called for.

G. Student feedback of teaching learning process and actions taken:

- At the end of the semester, all the students are required to fill a feedback-form apprising the faculty using a scale of 1 (high) through 10 (low).
- The Internal Monitoring Committee takes the feedback from students and submits the feedback analysis to the Principal. The Principal give constructive comments to improve the quality of teaching and the teaching- learning process.
- Lecture classes are monitored by senior Lecturers and the HOD of the Department. They give constructive comments to improve the quality of teaching and the teaching- learning process.
- Counseling by the respective HOD for those faculty members who have secured low scores and negative comments, if any, in the feedback. This motivates them to improve their skills and abilities.
- If required training / orientation programs and FDPs are conducted by professional

experts to master the skills of the faculty members and thus improving the efficiency of teaching-learning process.

2.2.2 Initiative to improve the quality of semester test and assignments

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

In a semester, the department conducts three tests. Each of the test consists of descriptive questions as well as quizzes. The average of the best two tests is considered for final internal assessment.

Each of the tests consists of descriptive questions as well as problems. The question papers for test are set based on COs. Blooms Taxonomy is followed while setting the internal exam question papers.

While designing the question paper, care is taken to include such questions that will assess the learning of expected course outcomes. The question paper pattern as recommended by BTE,UP is strictly followed.

Marks obtained by candidate in each test are displayed within 10 days on notice Board. Answer books of class tests are shown to students for feedback so as to make Improvement. The Answer books of Class Tests are preserved till the declaration of two consecutive examinations.

B. Process to ensure questions from outcomes/learning level perspectives

Each question is mapped with CO's PO's & Blooms taxonomy (BT) levels.

Student who answered to particular question is taken into consideration and average of all student marks is taken for CO -PO attainment

C. Evidence of COs Coverage in class test/Mid-term test

Individual student’s answer book is evaluated and question answered by student is mapped with CO's and PO's on a scale of 0 to 3(0-no relation, 1-slightly related, 2-moderately related and 3-closely related) and efforts are taken to see that the average for every CO is more than 2.

In addition to mandatory assignments given by BTE, UP additional assignments are given by faculty whenever felt necessary. Mapping of assignment questions to the course outcomes are also prepared by the subject faculty to justify its need.

2.2.3 Quality of Experiments

A. Experimental Methodologies

- The curriculum and syllabus of BTE, UP has specified the list of experiments to be performed after due consideration of the quality of the experiments. Few experiments are added by the subject faculty so as to further enhance the quality of the experimental skills.
- The Mechanical Department laboratories are equipped with the necessary instruments and machines to facilitate for the smooth conduction of experiments.
- The department has procured the necessary equipment's, machines, instruments and apparatus as prescribed by BTE, UP.
- The experiments are carried out by concerned faculty with the help of lab technician and lab instructor.
- The practical batch size limited to 25 to 30 students such that each student is able to perform the experiments independently.
- All the students shall be assessed continuously for his/her sincerity, punctuality, and discipline along with the understanding of facts, principles, theories and application.
- Record of continuous assessment of candidates should be maintained by lecturer in charge and kept in the custody of Head of the Department after completion of the term.
- Marks obtained by candidate after assessment of each practical work and skill test shall be shown to candidate for improvement in subsequent practical.
- The repair & maintenance related requirement of laboratory is also communicated to Principal, periodically.

B. Innovative experiments including industry attached practices, virtual labs

- CAD laboratory is well equipped with Software for learning and practice.
- CAM laboratory is well equipped with Software for learning and practice.

C. Relevance to outcomes

- The contents of the laboratory manual are mapped for the course outcomes on a scale of 0 to 3.
- Laboratory planning and proper conduct of practical ensures better understanding of course outcomes.
- Sufficient equipment and instrument develops interest in the course and program.
- The habit of performing experiment enables proficiency in practical performance.
- Well defined and transparent progressive assessment of practical helps the student in improving their performance.
- The skill test over experiment and external examiner viva voice helps students to build the communication skill and improved competency.

2.2.4 Quality of Students Projects and Report Writing

A. Identification of projects and allocation methodology

- The student's projects are selected in line with department mission, vision and Program outcomes.
- The project team varies from three to four students.
- Students are provided with brief idea of various fields for selecting the project ideas.
- The faculties encourage the students to carry out projects and support is provided with all necessary software and hardware.
- The Hardware Projects are identified based on need of society, technology and with respect to end user of the project.
- The list of previous year projects is displayed at notice board which ensures no repetition of project work and also encourages students to enhance the previous works.
- The faculties encourage students to participate in project exhibitions. The project exhibition was aimed to provide common platform to exhibit their innovations and their work towards excellence in latest technology.

B. Type and relevance of the projects and their contribution towards attainment of POs and PSOs

- Current academic projects are mapped to POs and PSOs.

- Each project is evaluated with internal marks and is graded according to their project quality and with their contribution towards attainment of PO's.
- Project should be selected such that they tend to contribute towards attainment of Program objectives (POs) and Program specific objectives (PSOs)
- As per the selection criterion designed at the departmental level the projects are selected by the students based on available resources and the outcomes expected. Industry supported project, application based project, study based projects are the broad categories of Project.

C. Process of monitoring and evaluation

- Process of monitoring and evaluation is solely based on BTE, UP curriculum and guidelines.
- The project is divided into various stages or chapters and scheduling is done as per the project planning sheet.
- All the students of a project group should meet their respective guide weekly once, and asked to submit their progress they have done in their project for that particular week.
- After every stage project progress report is submitted and get it approved by their respective guides
- The project guides will evaluate the report submitted by the students and help them carry on with project work.
- Evaluation is done and transparency and fair practice of assessment is ensured.

D. Process to assess individual and team performance

- Project progress seminars are conducted every month by the team of their respective guide and other senior faculty of the department.
- The project seminar should be given by all the project team members according to the division of project.
- Each student in the project team is assessed based on their presentation and their contribution in that particular section.
- Each individual and team performance is purely based on their project seminar presentation and the viva-voce and progress work they show to their guide.

E. Quality of completed projects/working prototypes

- The faculties encourage students to participate in project exhibitions.
- The project exhibition is aimed to provide common platform to exhibit their innovations and their work towards excellence in latest technology.
- Projects are categorized as theoretical, simulated, industry sponsored projects.
- Quality analysis is carried out for the completed projects based on innovation, product development, research orientation, presentation, socially relevant, problem-solving approach, etc.
- Working prototypes are encouraged as it includes majority of the components of desired outcomes of project.

F. Papers published /Awards received by projects etc.

- The faculties encourage students to present their project work in inter-college competitions and events.
- They are also made aware about poster presentation, etc.

2.2.5. Industry Interaction and Community Services

MOU's was done with industries to emphasize on

- Students specific Training from CADD Center, Lucknow

A. Industry supported Labs

- M/s CADD Center, Lucknow have been supporting by conducting software training by bringing their software tools for the purpose of demonstration and training.

B. Delivery of appropriate Course work by Industry experts

Following industries are involved in supporting the delivery of course work by deputing an expert from their company in terms of either workshop or expert lecture.

- Softron Institute
- CADD Center

Guest Lectures and Workshops have been arranged for students on following topics:

- Guest lecture on Nano-materials and Micro-machining, delivered by Dr. Andrew Rees, HOD of Mechanical Engineering Department, Saansea University, Wales, UK on 21st November 2018.

- Workshop on Robotics and Automation conducted by IIT, Bombay on 29-30 October, 2019.
- Workshop on CNC Machines conducted by Mr. Anuj Kumar Verma in June, 2019.

C. Industrial visits/tours for students

Following visits are arranged in order to meet the course outcomes of different courses.

Session 2016-17

No Industrial visit

Session 2017-18

S. No.	Day & Date	Time	Industry	Venue	Relevance to Pos & PSOs
1	13/04/2018	10 AM to 4 PM	CIPET	Amausi, Lko	
2	09/04/2018	10 AM to 4 PM	UPNEDA	Dewa Road, Lko	
3	10/04/1018	10 AM to 4 PM	UPNEDA	Dewa Road, Lko	

Session 2018-19

S. No.	Day & Date	Time	Industry	Venue	Relevance to Pos & PSOs
1	16/04/2019	10 AM to 4 PM	UPNEDA	Dewa Road, Lko	
2	26/04/2019	10 AM to 4 PM	CIPET	Amausi, Lko	

D. Industrial training

- The students are fortified to take implant training program during their semester break. Faculty members give their guidelines, suggestions and scope and contact details of an industry. They also help the students by interacting with the industrial experts, provide the students recommendation letters and other necessary supports.
- Industrial in-plant training is an essential tool to achieve the course and program outcomes.
- In plant training during summer vacation 2016-17, 2017-18 and 2018-19 respectively for 4 weeks details are shown below.

E. Post training Assessment

Post training assessment is done in the following manner.

- Students are directed to submit the in plant training report to the concerned course faculty.
- The students are asked to present the knowledge obtained through the training in the form of power point presentation.
- The concerned course faculty then award marks on the basis of attendance, skill acquired, and knowledge gained presentation style as per the scheme of BTE, UP curriculum.

2.2.6. Information Access Facilities and Student Centric Learning Initiatives

1. We have subscription of 20 journals in 2016-17, 14 journals in 2017-18 and 14 journals in 2018-19.
2. We have subscription of 12 magazines every year.
3. Facilities of NPTEL lectures.

2.2.7. New Initiatives for embedding Professional Skills

A. Employability skill enhancement initiatives and effective implementation

1. Conduction of one month workshop on AutoCAD.
2. Conducting value addition workshops from different institutions and industrial experts.
3. Conducting guest lecture from experts to make the students aware of newer technologies.
4. Visit to various industries for industrial exposure.
5. Conducting mock interview for final year students.
6. In-house training on CNC milling machine available at our workshop.

B. Personality development related Initiatives and effective implementation

1. This process includes boosting one's confidence, improving communication and language speaking abilities, widening ones scope of knowledge, developing certain hobbies or skills, learning manners.

2. Developing professional practice

3. Entrepreneurship development of final year students.

4. Conducting guest lectures on relevant topics.

2.2.8 Co-curricular and Extra-curricular Activities

1. Republic day celebrated every year on 26th January.

2. Celebration of World Earth Day on 22nd April every year for grievances of sustainability and existence of ours in the future.

3. World Environment Day celebrated on 5th June every year for conservation of environment.

4. International Yoga Day celebrated on 21st June every year.

5. Induction program conducted every year for newly admitted first year students.

6. Mech-Era Fest is a techno-cultural fest by Department of Mechanical Engineering. It explores mental ability, patience and creativity along with the ability to propagate the social message to the world with "Nukkad Natak".

7. Dr. Kalam Startup Parikrama is a one day workshop organized by SMS, Lucknow for entrepreneurship development.

8. Industrial Visits are planned every year.

Criterion 3	COURSE OUTCOMES AND PROGRAM OUTCOMES

3.1. Establish the correlation between the courses and the Program Outcomes (POs) and Program Specific Outcomes (PSOs)

LIST OF PROGRAM OUTCOMES

PO1	Basic Knowledge: Ability to apply knowledge of basic mathematics, science and engineering in order to solve Mechanical Engineering problems.
PO2	Discipline Knowledge: Ability to apply specific discipline knowledge so as to solve broadly defined Mechanical Engineering problems.
PO3	Experiments and Practice: Ability to conduct standard tests and experiments to analyze and interpret the results.
PO4	Engineering Tools: Ability to apply techniques, tools and skills of Mechanical Engineering to describe engineering technology activities.
PO5	The Engineer and Society: Express knowledge to analyze societal, safety, health, cultural and legal issues.
PO6	Environment and Sustainability: Demonstrate knowledge and need of sustainable development while understanding the influence of engineering solutions on environment.
PO7	Ethics: Apply ethical principles and commit to professional ethics as well as responsibilities and norms of engineering practice.
PO8	Individual and team work: Function effectively as an individual, and as a member or leader in diverse/multidisciplinary teams.
PO9	Communication: An ability to apply oral, written and graphical communication in both technical and non-technical environments and ability to use appropriate technical literature.
PO10	Life-long learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the context of technological changes.

LIST OF PSO's

PSO1	The program must demonstrate the understanding of principles to Design, Fabricate, Test, operations and working of basic mechanical systems and processes.
PSO2	Ability to design, test, evaluate and implement society needed products and utilize in manufacturing or processing such quality products with highest environment safety.

Correlation between POs and PSOs

POs	PSO1	PSO2
PO1	3	
PO2	2	
PO3	2	
PO4	2	2
PO5		2
PO6		1
PO7		
PO8		2
PO9		2
PO10		2

3.1.1. Course Outcomes (SAR should include course outcomes of one course for each semester of study, however, should be prepared for all courses)

Applied Maths – I (1st Semester) (Course Code – C102)

CO	Course Outcome (The Student would be able to)
CO1	Apply binomial theorem and determinants to solve engineering problems.
CO2	Apply dot & cross product of vectors to find the solution of engineering problems.
CO3	Apply complex numbers to find the solution of engineering problems s.
CO4	Apply differential calculus and higher order to solve engineering problems.
CO5	Find velocity, acceleration, errors and approximation in engineering problems with application of derivatives.

Applied Mechanics (2nd Semester) (Course Code – C203)

CO	Course Outcome (The Student would be able to)
CO1	Define engineering concepts, system of forces and working of machines.
CO2	Deduce the concepts of different force systems on different bodies.
CO3	Establish the corelation between various engineering properties and terminologies.
CO4	Calculate the co-efficient of friction for different types of surfaces.
CO5	Analyze different types of forces acting on a body and draw free body diagrams.

Thermal Engineering (3rd Semester) (Course Code – C303)

CO	Course Outcome (The Student would be able to)
CO1	Apply thermodynamic laws. Solve basic problems of gas equation using perfect gas laws. Determine enthalpy, specific heat capacity and P-V-T surface of an ideal and real gas.
CO2	Explain the working, construction and applications of steam boilers and steam

	generators. Explain the functions and uses of air compressors.
CO3	Interpret different modes of heat transfer.
CO4	Explain the working of IC engine. Assist in testing an IC engine.
C05	Explain the functioning of steam turbine, gas turbine and jet propulsion.

Mechanics of Solid (4th Semester) (Course Code – C402)

CO	Course Outcome (The Student would be able to)
CO1	Interpret various concepts and terms related to strength of materials and calculate stresses in bars of various cross-section.
CO2	Calculate energy stored by materials subjected to axial loads.
CO3	Calculate moment of inertia of different sections. Interpret the concept of bending and torsion and calculate stresses on different section of materials. Determine the diameter of a shaft under combined bending and torsion.
CO4	Draw and calculate shear force and bending moment diagrams of beam under given loading.
C05	Calculate stresses in thin cylindrical shells.Calculate critical axial loads on column under different end constraints.

Design and Estimation (5th Semester) (Course Code – C505)

CO	Course Outcome (The Student would be able to)
CO1	Explain basic principles & procedure of machine design, modes of failure & remember material properties & Codes involved with machine design.
CO2	Analysis to Direct load and shear loads on machine part. Determine of safe load and pitch of rivets ,Design of lap and butt joints and common types of welded joint
CO3	Analysis causes of bending moment and design for diameter of railway-wagon axle. Analysis causes of twisting moment and design solid ,hollow shaft and key and coupling
CO4	Analysis of combine Bending and Twisting moment and to study theory of failure
C05	Design procedure for spur and helical gear. Estimation of Material requirement and time for different machine operation

Industrial Engineering and Safety (6th Semester) (Course Code – C602)

CO	Course Outcome (The Student would be able to)
CO1	Use industrial engineering concepts to improve productivity
CO2	Use resources optimally and economically and qality control
CO3	Apply work study techniques for improving productionexplain various incentive plans
CO4	Maintain inventory optimally and classify different types of inventory and study about value of engineering
C05	Take preventive measures to avoid accidents use of safety device.

3.1.2. CO-PO/PSO matrices of course selected in 3.1.1. (six matrices to be mentioned; one course per semester from 1st to 6th semester)

Applied Maths-I

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PSO1	PSO2
CO1	2	1							1	1		
CO2	2	1	1		1			1	1	1	1	1
CO3	2		1				1		1		1	1
CO4	2	1	1	1	1				1	1	1	1
CO5	2	1	2	1	1	1	1	1	2	1	1	1
Average	2	0.8	1	0.4	0.6	0.2	0.4	0.4	1.2	0.8	0.8	0.8

Applied Mechanics

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PSO1	PSO2
CO1	2	2	2	1	-	-	1	1	1	-	1	1
CO2	2	2	1	-	1	-	-	-	-	2	1	2
CO3	2	1	1	1	1	1	-	-	2	2	1	2
CO4	2	2	2	-	-	-	-	-	1	-	2	1
CO5	2	2	1	-	1	-	-	-	2	1	2	1
Average	2	1.8	1.4	0.4	0.6	0.2	0.2	0.2	1.2	1	1.4	1.4

Thermal Engineering

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PSO1	PSO2
CO1	2	2	1	2	1	2	1	1	2	2	2	2
CO2	2	2	2	2	2	-	-	2	1	1	1	2
CO3	2	1	3	1	2	1	1	2	2	2	2	3
CO4	2	2	3	2	3	2	2	2	1	2	1	1
CO5	1	2	1	1	2	2	1	2	2	2	2	2
Average	1.8	1.8	2	1.6	2	1.4	1	1.8	1.6	1.8	1.6	2

Mechanics of Solid

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PSO1	PSO2
CO1	2	2	1	2	1	1	2	1	2	1	2	2
CO2	2	2	2	1	1	1	2	1	1	1	2	2
CO3	2	2	2	1	2	1	1	1	2	1	2	2

CO4	2	2	1	2	2	1	1	1	1	1	1	1
CO5	2	2	1	2	2	1	1	2	1	1	1	2
Average	2	2	1.4	1.6	1.6	1	1.4	1.2	1.4	1	1.6	1.8

Design and Estimation

	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PSO1**	**PSO2**
CO1	2	3	2	2	2	-	2	1	3	2	3	2
CO2	2	3	2	1	2	-	2	2	2	3	3	2
CO3	1	3	3		3	2	3	2	3	2	3	3
CO4	2	2	2	3	3	2	2	2	2	2	2	3
CO5	2	2	2	2	3	2	3	2	3	2	2	2
Average	1.8	2.6	2.2	1.6	2.6	1.2	2.4	1.8	2.6	2.2	2.6	2.4

Industrial Engineering and Safety

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PSO1	PSO2
CO1	3	2	2	1	2	3	2	3	3	3	3	2
CO2	2	3	2	3	2	3	2	3	2	3	3	2
CO3	3	3	3	2	3	3	3	3	3	3	3	3
CO4	3	2	2	3	3	3	2	2	2	3	2	3
CO5	2	2	0	3	3	2	0	2	2	3	2	2
Average	2.6	2.4	1.8	2.4	2.6	2.8	1.8	2.6	2.4	3	2.6	2.4

3.1.3 Program Level Corse-PO/PSO matrix of all courses Including first year course

CO / PO	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PSO1**	**PSO2**
C102	2.0	0.8	1.0	0.4	0.6	0.2	0.4	0.4	1.2	0.8	0.8	0.8
C203	2.0	1.8	1.4	0.4	0.6	0.2	0.2	0.2	1.2	1.0	1.4	1.4
C303	1.8	1.8	2.0	1.6	2.0	1.4	1.0	1.8	1.6	1.8	1.6	2.0
C402	2.0	2.0	1.4	1.6	1.6	1.0	1.4	1.2	1.4	1.0	1.6	1.8
C505	1.8	2.6	2.2	1.6	2.6	1.2	2.4	1.8	2.6	2.2	2.6	2.4

C602	2.6	2.4	1.8	2.4	2.6	2.8	1.8	2.6	2.4	3.0	2.6	2.4
Average	2.0	1.9	1.6	1.3	1.7	1.1	1.2	1.3	1.7	1.6	1.8	1.8

3.2 Attainment of Course Outcomes

3.2.1. Describe the assessment processes used to gather the data upon which the evaluation of course Outcome is based

A. List of assessment processes

Direct Assessment methods are formative as well as summative. Following processes have been undertaken to find the direct attainment of course outcomes. For direct attainment the mid-semester test or sessional test result and BTE, UP end semester result is taken into consideration.

Continuous internal evaluation

Mid-Semester Tests (CT1, CT2)

- Three mid-semester tests are conducted in each semester – one after 8 weeks from commencement of classes, second at the end of semester.
- Faculties are guided by sample question papers and previous year papers as guide lines for setting question paper for mid-semester tests.
- Course outcome of the subject are taken into consideration while setting up the question paper.
- After paper assessment the attainment of course outcome is found by determining the number of students having met the set standard in the said subject.
- Based on the above calculation the attainment level is found.

BTE, UP Result (Semester Theory Exam)

- BTE, UP provides teaching scheme for every semester, which includes the components viz., Theory Exam, Practical / Oral exam and term work along with the maximum marks allotted for each component.
- The marks of the applicable components are added and attainment of course outcome is found by determining the number of students who have met the set standard in the said subject.

- The direct attainment is calculated by taking into consideration the 20% of allotment level for BTE, UP.

3.2.2. Record the attainment of Course Outcomes of all courses with respect to set attainment levels

A. Verify the attainment levels as per the benchmark set for all courses

Attainment level is taken as under for BTE, UP:

- 40% students scoring more than BTE, UP theory score index = Attainment level 1.
- 50% students scoring more than BTE, UP theory score index = Attainment level 2.
- 60% students scoring more than BTE, UP theory score index = Attainment level 3.

For final practical / oral examination since BTE, UP does not provide average marks, 60% marks is considered and attainment levels are considered as follows.

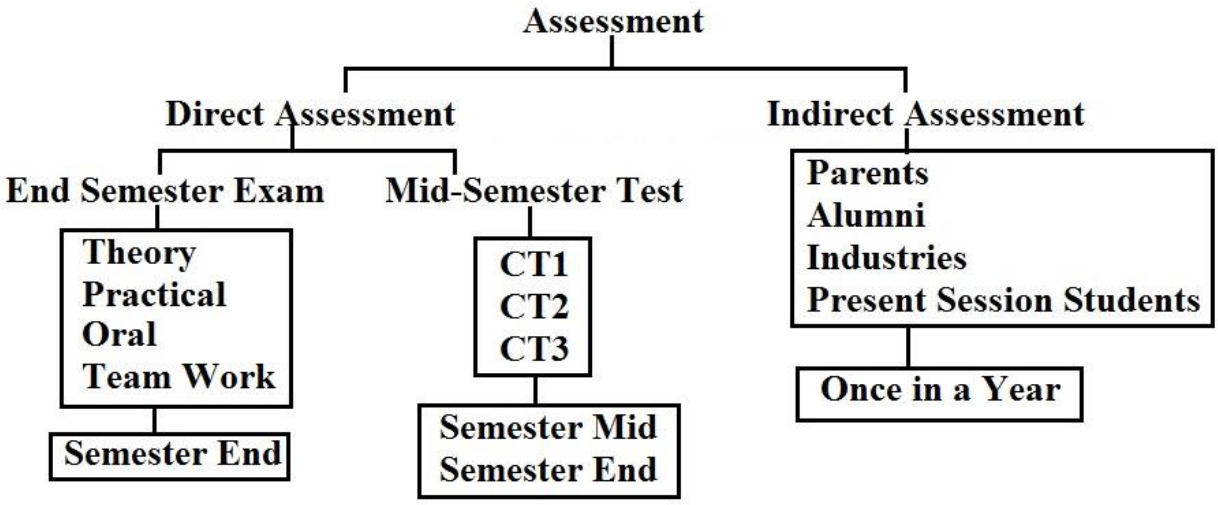
- 40% students scoring more than 60% marks in final practical / oral examination = Attainment level 1.
- 50% students scoring more than 60% marks in final practical / oral examination = Attainment level 2.
- 60% students scoring more than 60% marks in final practical / oral examination = Attainment level 3.
- For progressive theory tests 1 and 2, 60% marks is taken and attainment level is considered as before.
- For progressive assessment of term work too, either class average is taken or the Couse teacher decides the benchmarking and attainment level is taken as before.
- Overall attainment is then found out as sum of 80% of board assessment tools and 20% of internal assessment tools.
- CO attainment table is then prepared.
- Target attainment value is set by the course teacher depending on the difficulty level and importance of the course content and deviation if any are noted.
- Reasons for deviations and remedial measures for the same are suggested by the course teacher for meeting the target value in the ensuing semesters.
- Higher target is set for the next batch of students when the target is achieved.
- Final CO attainment is prepared, based on which the PO attainment is deduced.

3.3. Attainment of Program Outcomes and Program Specific Outcomes

3.3.1. Describe assessment tools and processes used for assessing the attainment of each of the POs & PSOs

A. List of assessment tools & processes

- PO attainment and PSO attainment are based on CO attainment.
- CO attainment is done through external and internal assessment tools as per BTE's norms as explained in 3.2.2
- The course teacher based on CO attainment then prepares PO attainment table proportionately.
- Thus, the CO-PO matrix based on CO attainment is prepared by the course teacher which is considered as direct attainment of POs and PSOs.
- Feedback from alumni and employer are then collected for PO and PSO attainment through the curricular and co-curricular activities of diploma program of BTE, UP which is considered as indirect attainment tool.
- The course PO and PSO matrix is then prepared for all the courses considering 80% of direct attainment tool and 20% of indirect attainment tool.



B) THE QUALITY / RELEVANCE OF ASSESSMENT TOOLS / PROCESSES USED

- The subject faculty based on CO attainment then prepares PO attainment table proportionately.

- Thus, the CO PO matrix based on CO attainment is prepared by the subject faculty which is considered as direct attainment of POS and PSOS.
- Feedback from alumni and employer are then collected for PO and PSO attainment through the curricular and co-curricular activities of diploma program of BTE, UP which is considered as indirect attainment tool.
- The course PO and PSO matrix is then prepared for all the courses considering 80% of direct attainment tool and 20% of indirect attainment tool.
- Course PO and Course PSO matrix based on CO attainment.

3.3.2. Provide results of evaluation of each PO & PSO

A. Verification of documents, results and level of attainment of each PO/PSO (20)

B. Overall levels of attainment (10)

	Course Name	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PSO1**	**PSO2**
First Semester	C101								0.40	2.00	2.00		
	C102	2.00	0.80	1.00	0.40	0.60	0.20	0.40	0.40	1.20	0.80	0.80	0.80
	C103	2.00	1.20	0.80	1.20	0.80	0.80			1.20	1.00	0.80	0.80
	C104	1.60	1.20	1.40	1.00	1.20	1.20	1.00	0.80	1.00	1.20	1.00	0.80
Second Semester	C201	2.00	1.60	1.20	1.40		0.80	1.00	0.80	0.80	1.20	0.80	0.80
	C202	1.40	1.20	1.00	1.00	0.80	0.80	1.00	1.00	1.20	1.00	1.20	1.20
	C203	2.00	1.80	1.40	0.40	0.60	0.20	0.20	0.20	1.20	1.00	1.40	1.40
	C204	1.60	0.60	2.00	1.20	1.40	1.40	1.40	1.40	1.20	1.00	1.40	1.20
Third Semester	C301	1.80	1.60	1.60	1.80		0.80	1.20	0.80	0.80	1.40	1.80	1.60
	C302	1.60	1.40	1.20	1.40	0.40	0.80	0.20	0.60	0.60	0.80	1.60	1.80
	C303	1.80	1.80	2.00	1.60	2.00	1.40	1.00	1.80	1.60	1.80	1.60	2.00
	C304	1.40	1.80	2.00	1.80	1.60	1.00	1.80	2.00	2.00	2.00	1.60	1.40
Fourth Semester	C401								0.40	2.00	2.00		
	C402	2.00	2.00	1.40	1.60	1.60	1.00	1.40	1.20	1.40	1.00	1.60	1.80
	C403	2.00	2.20	2.40	1.80	1.80	1.80	1.60	1.40	1.80	1.80	2.00	2.00

	C404	1.60	0.60	2.00	1.60	2.00	2.00	2.00	2.00	2.40	2.00	1.60	1.80
Fifth Semester	C501	1.80	1.80	1.60	1.80	2.00	1.40	1.80	1.40	2.60	2.60	2.00	2.40
	C502	2.80	2.60	1.40	0.80		0.40				0.80	2.20	2.20
	C503	2.60	2.60	1.40	0.40	0.60	0.20	0.20	0.20	1.20	1.00	2.00	2.00
	C504	1.80	2.60	2.20	1.60	2.60	1.20	2.40	1.80	2.60	2.20	2.60	2.40
	C505	1.40	2.60	3.00	2.60	2.20	1.00	2.80	3.00	3.00	3.00	1.60	1.40
Sixth Semester	C601	0.60	0.60			2.00	2.20	1.20	1.20	1.20	2.20	1.60	2.40
	C602	2.60	2.40	1.80	2.40	2.60	2.80	1.80	2.60	2.40	3.00	2.60	2.40
	C603	2.20	2.40	2.60	2.40	1.40	1.20	1.20	1.60	1.80	2.00	2.40	2.20
	C604	1.40	2.60	3.00	2.60	2.20	1.00	2.80	3.00	3.00	3.00	1.60	1.40
	C605	2.00	2.60	3.00	2.60	2.20	2.00	2.80	3.00	3.00	3.00	2.00	2.20
	Direct Attainments	1.83	1.78	1.80	1.54	1.55	1.15	1.42	1.38	1.73	1.72	1.66	1.68
	Indirect Attainments	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
	Total Attainments = 80% of Direct Attainments + 20% of Indirect Attainments	1.764	1.724	1.74	1.532	1.54	1.22	1.436	1.404	1.684	1.676	1.628	1.644

Criterion 4	Students Performance

Intake Information

Item	CAY (2018-19)	CAYm1 (2017-18)	CAYm2 (2016-17)
Sanctione intake strength of the program (N)	120	120	120
Total number of students admitted through state level counselling (N1)	–	–	–
Number of students admitted through Institute quota (N2)	85	67	100
Number of students admitted through lateral entry (N3)	5	11	11

Total number of students admitted in the program (N1+N2+N3)	90	78	111

Year of Entry	**N1+N2+N3 (As defined above)**	**Number of students who have successfully passed without backlogs in any year of study**		
BTE, UP Summer Exam		**I Year**	**II Year**	**III Year**
CAY (2018-19)	88	30	16	50
CAYm1 (2017-18)	84	20	56	43
CAY m2(2016-17)	110	20	39	48

Year of Entry	**N1+N2+N3 (As defined above)**	**Number of students who have successfully passed (Students having backlogs in stipulated period of study)**		
BTE, UP Summer Exam		**I Year**	**II Year**	**III Year**
CAY (2018-19)	88	30	30	25
CAYm1 (2017-18)	84	28	29	4
CAY m2(2016-17)	110	56	8	3

4.1. ENROLMENT RATIO

S.No.	2018-19	2017-18	2016-17
N	120	120	120
N1+N2	85	67	100
Enrolment Ratio = (N1+N2)/N	0.71	0.56	0.83

4.2. Success rate in stipulated period of the program

4.2.1 Success rate without backlogs in any year of study

Success Index = (Number of students who have passed from the program without backlog)/(Number of students admitted in the first year of that batch and admitted in 2nd year of lateral entry)

Average Success Index = Mean of success Index (SI) for past three batches = 0.67

Success Rate without backlogs in any year of study = 40 × Average Success Index = 26.8

Item	Last Year Passed Out Batch (2019) admitted in 2016	Last Year Passed Out minus 1 Batch (2018) admitted in 2015	Last Year Passed Out minus 2 Batch (2017) admitted in 2014
Total number of students (admitted through state level counseling + admitted through Institute level quota + admitted through lateral entry) (N1+N2+N3)	100	60	60
Number of students who have passed without backlogs in the stipulated period	50	43	48
Success Index (SI)	0.5	0.72	0.8
Average SI	0.67		

4.2.2Success rate with backlog in stipulated period of study

Success Index = (Number of students who have passed from the program without backlog)/(Number of students admitted in the first year of that batch and admitted in 2nd year of lateral entry)

Average Success Index =Mean of success Index (SI) for past three batches = 0.122

Success rate =20xAverage Success Index = 2.44

Item	Last Year Passed Out Batch (2019) admitted in 2016	Last Year Passed Out minus 1 Batch (2018) admitted in 2015	Last Year Passed Out minus 2 Batch (2017) admitted in 2014
Total number of students (admitted through state level counseling + admitted through Institute level quota + admitted through lateral entry) (N1+N2+N3)	100	60	60
Number of students who have passed with backlogs in the stipulated period	25	4	3
Success Index (SI)	0.25	0.067	0.05
Average SI	0.122		

4.3 Academic Performance in final year

Academic performance level=1.5xAverage API (academic performance index) = 102.26

API=(Mean of final year Grade point average of all successful students on a 10 point scale) × (successful students /number of students appeared in the examination)

Successful students are those who passed in all the final year courses.

Academic Performance	CAY (2018-19)	CAYm1 (2017-18)	CAYm2 (2016-17)
Mean of percentage of all successful students (X)	68.33	68.97	68.12

Total No. of Successful Students (Y)	75	47	51
Total No.of Students appeared in the examination (Z)	76	47	51
API = X*(Y/Z)	67.43092105	68.97	68.12
Average API = (AP1 + AP2 + AP3)/3	68.17364035		

4.4 Academic performance in second year

Academic performance level=2.0×Average API = 123.82

API=(Mean of second year Grade point average of all successful students in second year/10) × (successful students /number of students appeared in the examination)

Academic Performance	CAY (2018-19)	CAYm1 (2017-18)	CAYm2 (2016-17)
Mean of percentage of all successful students (X)	55.38	65.1	70.68
Total No. of Successful Students (Y)	46	85	47
Total No.of Students appeared in the examination (Z)	51	85	47
API = X*(Y/Z)	49.95058824	65.1	70.68
Average API = (AP1 + AP2 + AP3)/3	61.91019608		

4.5 Academic performance in First year

Academic performance level=2.0×Average API = 112.87

API=(Mean of second year Grade point average of all successful students in first year/10) × (successful students /number of students appeared in the examination)

Academic Performance	CAY (2018-19)	CAYm1 (2017-18)	CAYm2 (2016-17)
Mean of percentage of all successful students (X)	67.07	62.61	65.15
Total No. of Successful Students (Y)	60	48	76
Total No.of Students appeared in the examination (Z)	83	51	80
API = X*(Y/Z)	48.48433735	58.92705882	61.8925

Average API = (AP1 + AP2 + AP3)/3	56.43463206

4.6 Placement and Higher Studies

Assessment points =40×(1.25X +Y)/N

where, X=Number of students placed in companies or Government sector through on/off campus recruitment

Y=Number of students admitted to higher studies

N= Number of final year students

Item	CAY (2018-19)	CAYm1 (2017-18)	CAYm2 (2016-17)
Total no. of Final year students (N)	85	48	49
No. of Students placed in companies or Government Sector (X)	78	34	42
No.of Students admitted to higher studies (Y)	4	0	0
No.of Students turned entrepreneur in the respective field of engineering/technology (Z)	0	0	0
1.25X+Y+Z	101.5	42.5	52.5
Placement Index (P) = (1.25X+Y+Z)/N	1.194117647	0.885416667	1.071428571
Average Placement = (P1+P2+P3)/3	1.050320962		

4.6.a. Provide the placement data in the below mentioned format with the name of the program and the assessment year (separately for CAYm1, CAYm2, CAYm3)

Placement details of 2018-19

S. No.	Students Name	Placements Status
1	ABHAY RAJ SINGH	**KP Reliable**
2	ABHISHEK KUMAR	**Jaya Hind Industries/Motherson Sumi**
3	ABHISHEK MISHRA	**Jaya Hind Industries**
4	ADARSH MAURYA	**AIS Glass Ltd.**
5	ADITYA KUMAR KUSHWAHA	**AIS Glass Ltd./Jaya Hind Industries/Motherson Sumi**
6	ADITYA KUMAR RAWAT	**Jaya Hind Industries**
7	AJAY JADEJA SAHANI	**AIS Glass Ltd.**

8	AKASH GOND	**Jaya Hind Industries/Motherson Sumi**
9	ALOK VERMA	**Jaya Hind Industries**
10	AMAN YADAV	**AIS Glass Ltd./Jaya Hind Industries/Motherson Sumi**
11	AMAN YADAV	**AIS Glass Ltd./Motherson Sumi**
12	AMAR NATH JAISWAL	**Jaya Hind Industries/Mahindra & Mahindra**
13	AMIT KUMAR	**AIS Glass Ltd./Ultra Engineers/Motherson Sumi**
14	AMITOSH PAL	**Jaya Hind Industries**
15	AMULYA AMAN	**AIS Glass Ltd./Motherson Sumi**
16	ANEESHA YADAV	**Rane Madras/Jaya Hind Industries/Mahindra & Mahindra**
17	ANIL KUMAR GUPTA	**KP Reliable**
18	ANJITA KUMARI	**Jaya Hind Industries/Mahindra & Mahindra**
19	ANKIT KUMAR (L)	**AIS Glass Ltd./Ultra Engineers/Motherson Sumi**
20	ANKIT SINGH	**Jaya Hind Industries**
21	ANKUL PATEL	**Jaya Hind Industries**
22	ARUN KUMAR YADAV (L)	**Jaya Hind Industries/Motherson Sumi**
23	ARUN SAHU	**KP Reliable**
24	ASHWINI PANDEY	**Jaya Hind Industries**
25	ASHWINI SINGH	**AIS Glass Ltd./KP Reliable/Motherson Sumi**
26	AVINASH PAL	**Ultra Engineers**
27	AYUSH KUMAR SINGH	**Jaya Hind Industries/Motherson Sumi**
28	BABLI YADAV	**Jaya Hind Industries/Mahindra & Mahindra**
29	BABLU KUMAR	**AIS Glass Ltd.**
30	CHANDAN KUMAR SAHANI	**Ultra Engineers**
31	DEEPAK PRASAD	**Ultra Engineers**
32	DEEPU KUMAR DUBEY	**Jaya Hind Industries**
33	DEVENDRA BAJPAI (L)	**AIS Glass Ltd./Jaya Hind Industries/Motherson Sumi/Mahindra & Mahindra**
34	DEWANAND PASWAN	**AIS Glass Ltd.**
35	DINESH KUMAR SAHU	**Jaya Hind Industries/Motherson Sumi**
36	DIVYANSH SHUKLA (L)	**Motherson Sumi**
37	DURGESH KUMAR	**Ultra Engineers**
38	JAIKISHAN SRIVASTAVA	**AIS Glass Ltd./Ultra Engineers**
39	MALKHAN YADAV	**Jaya Hind Industries/Motherson Sumi**
40	MANISH BHATIA (L)	**Jaya Hind Industries**
41	MANISH RAWAT	**Ultra Engineers**
42	MD LIYAKAT ANSARI	**Motherson Sumi**
43	MISBAUL HAQ	**Motherson Sumi**
44	MOHIT YADAV	**KP Reliable**
45	MONU KUMAR SINGH	**AIS Glass Ltd.**

	(L)	
46	MRITYUNJAY YADAV	**Jaya Hind Industries/Motherson Sumi**
47	MUKESH KUMAR	**Jaya Hind Industries**
48	MUSKAN KUMARI	**Rane Madras/Jaya Hind Industries/Mahindra & Mahindra**
49	NEERAJ PAL	**AIS Glass Ltd./Rane Madras/Motherson Sumi**
50	PRABHAT DIXIT (L)	**AIS Glass Ltd./Ultra Engineers/Motherson Sumi/Mahindra & Mahindra**
51	PRAJJWAL DWIVEDI	**Ultra Engineers**
52	RAHUL BHARATI	**Ultra Engineers**
53	RAHUL YADAV	**Ultra Engineers**
54	RAJAN JAISWAL	**AIS Glass Ltd./Jaya Hind Industries**
55	RAVI KUMAR YADAV	**AIS Glass Ltd./Jaya Hind Industries**
56	RISHAV KUMAR	**AIS Glass Ltd./Jaya Hind Industries/Motherson Sumi**
57	RUPESH NANDAN	**KP Reliable**
58	SACHIN KUMAR	**AIS Glass Ltd./Rane Madras/Jaya Hind Industries/Motherson Sumi**
59	SACHIN SAHU	**AIS Glass Ltd./Ultra Engineers/Motherson Sumi**
60	SANDEEP KUMAR GUPTA	**Jaya Hind Industries**
61	SANJAY KUMAR CHAUDHARY	**Ultra Engineers/Motherson Sumi**
62	SATYENDRA KUMAR PRAJAPATI	**Ultra Engineers**
63	SHAILESH SINGH (L)	**Rane Madras/Jaya Hind Industries/Motherson Sumi**
64	SHAKTI KUMAR	**KP Reliable**
65	SHASWAT SHUKLA	**Jaya Hind Industries/Mahindra & Mahindra**
66	SHUBHAM KUMAR YADAV	**Ultra Engineers**
67	SHUBHAM SINGH YADAV	**KP Reliable**
68	SUDARSHAN KUMAR YADAV	**Jaya Hind Industries/Motherson Sumi**
69	SUDHIR KUMAR	**Ultra Engineers**
70	SURENDRA KUMAR	**Ultra Engineers**
71	SURYA TIWARI	**Motherson Sumi/Mahindra & Mahindra**
72	UPENDRA KUMAR TIWARI	**Jaya Hind Industries**
73	VAIBHAV MISHRA	**AIS Glass Ltd./KP Reliable**
74	VIKAS KUMAR JAISWAL	**Jaya Hind Industries**
75	VIKAS VERMA	**KP Reliable**
76	VISHAL YADAV	**Motherson Sumi/Mahindra & Mahindra**
77	VISHWAJIT KUMAR	**Jaya Hind Industries/Motherson Sumi**

	PRAJAPATI	
78	VIVEK	**Motherson Sumi**

Placement details of 2017-18

S. No.	Students Name	Placements Status
1	ADARSH DEEP	**Motherson Sumi Systems**
2	AJAY KUMAR YADAV	**Motherson Sumi Systems**
3	AKULENDRA KUMAR	**Motherson Sumi Systems**
4	ALOK KUMAR	**Motherson Sumi Systems**
5	AMIT KUMAR SAH	**Motherson Sumi Systems**
6	ANCHAL KUMAR YADAV	**Motherson Sumi Systems**
7	ANISH KUMAR YADAV	**Motherson Sumi Systems**
8	ANJANI KUMAR PANDEY	**Motherson Sumi Systems**
9	ANKIT SINGH	**Motherson Sumi Systems**
10	ARCHIT PANDEY	**Motherson Sumi Systems**
11	ASHISH KUMAR AGRAHARI	**Motherson Sumi Systems**
12	ASHISH KUMAR SHARMA	**Motherson Sumi Systems**
13	AVINASH SHUKLA	**Motherson Sumi Systems**
14	AYUB ALI	**Motherson Sumi Systems**
15	DASHARATH YADAV	**Mahindra & Mahindra**
16	JAY DEEP SINGH	**Motherson Sumi Systems**
17	JITENDRA KUMAR	**Motherson Sumi Systems**
18	MANGLESH YADAV	**Motherson Sumi Systems**
19	MANISH KUMAR YADAV	**Motherson Sumi Systems**
20	MITHILESH SHARMA	**Motherson Sumi Systems**
21	MOHIT KUMAR KUSHWAHA	**Motherson Sumi Systems**
22	NITISH KUMAR MISHRA	**Motherson Sumi Systems**
23	PANKAJ KUMAR SHARMA	**Motherson Sumi Systems**
24	RAJAN YADAV	**Motherson Sumi Systems**
25	RITURAJ SINGH	**Mahindra & Mahindra**
26	SANJEEV KUMAR SINGH	**Motherson Sumi Systems**
27	SATISH KUMAR YADAV	**Motherson Sumi Systems**
28	SATYAM SINGH	**Mahindra & Mahindra**
29	SAURABH KUMAR SINGH	**Mahindra & Mahindra**

30	SAURAV SINGH	**Motherson Sumi Systems**
31	SHARAD BHUSHAN MISHRA	**Mahindra & Mahindra**
32	SHIVAM YADAV	**Motherson Sumi Systems**
33	SHUBHAM KUMAR	**Motherson Sumi Systems**
34	SUDHANSHU SRIVASTAVA	**Mahindra & Mahindra**

Placement details of 2016-17

S. No.	Students Name	Placements Status
1	ABHAY KUMAR MISHRA	**Motherson Sumi**
2	ADARSH JAISWAL	**Motherson Sumi**
3	ADARSH PRATAP SINGH	**Motherson Sumi**
4	ADITYA KUMAR PANDEY	**Motherson Sumi/M&M**
5	AJAY KUMAR GUPTA	**M&M**
6	AJIT KUMAR PAL	**Motherson Sumi**
7	ALOK KASHYAP	**Motherson Sumi**
8	AMAN KUMAR	**Motherson Sumi**
9	AMARJIT YADAV	**Motherson Sumi/M&M**
10	ANUJ KUMAR	**Motherson Sumi**
11	ANUJ YADAV	**KKES/M&M/Livpure/Motherson Sumi**
12	ARIF ALI ANSARI	**Motherson Sumi**
13	ATISH KUMAR SINGH	**Motherson Sumi**
14	ATUL KUMAR GUPTA	**Motherson Sumi**
15	AWADHESH KUMAR	**Motherson Sumi/M&M**
16	BRIJESH KUMAR	**Motherson Sumi/Livpure**
17	BRIJESH KUMAR	**Motherson Sumi**
18	DHEERAJ KUMAR PAL	**Motherson Sumi**
19	FARHAN ANSARI	**Motherson Sumi**
20	FIROJ ANSARI	**Motherson Sumi**
21	GAURAV VERMA	**Motherson Sumi**
22	IMAMUDDIN ANSARI	**Motherson Sumi**
23	KALI PRASAD	**Motherson Sumi**
24	NARENDRA YADAV	**Motherson Sumi/M&M**
25	PAWAN KUMAR PANDEY	**Motherson Sumi**
26	PRASHANT PANDEY	**Motherson Sumi**
27	PRAVEEN KUMAR RAWAT	**Motherson Sumi**
28	RAHUL KUMAR GUPTA	**Motherson Sumi/M&M**
29	RAHUL KUMAR YADAV	**Motherson Sumi**

30	RAKESH KUMAR YADAV	**Motherson Sumi**
31	RANJEET KUMAR YADAV	**M&M**
32	RAVI SHANKAR	**Motherson Sumi**
33	ROHIT RAI	**M&M**
34	SATISH YADAV	**Motherson Sumi/M&M**
35	SHIVAM CHITRANSH	**Motherson Sumi/M&M**
36	SHIVAM SINGH	**Motherson Sumi**
37	SHIVANSHU SHUKLA	**Motherson Sumi/M&M**
38	SHYAM PRAKASH	**Motherson Sumi**
39	VIKAS YADAV	**Motherson Sumi**
40	VIKRAM KUMAR PATEL	**Motherson Sumi/M&M**
41	VIVEK SINGH	**Motherson Sumi**
42	VRIJESH KUMAR SINGH	**Motherson Sumi**

4.7 Professional activities

4.7.1 Professional societies/student chapters and organizing technical events

A. Availability of Professional Society/Chapters & relevant Activities

1. Tree Plantation Project – Held every year .

2. Unnat Bharat – 5 villages have been adopted by the institute.

B. Number, quality of engineering events

1. Technical Fest - Held at institute level. Students from different institution take part in various technical events.

2. MECHERA – Event by Mechanical Engineering Department. Students from different institution take part in various technical events.

4.7.2 Publication of technical magazines, Newsletters, etc.

1. Samriddhi – A bi-annual UGC Approved publication. This deals in the field of physical science and engineering.

2. Newsletter – Twice a year.

4.7.3. Participation in inter-institute/state/national events by students of program of study

Not Applicable

Criterion 5	Faculty Information and Contributions

Faculty Information: CAY (2018-19)

Name of Faculty Member	Qualification	University Year of Graduation	Designation and date of joining the institution	Distribution of Teaching Load (%)			Academic Research		Years of Experience	Nature of Association (Regular/ Contract)
				I Year	II Year	III Year	Research Paper Publication	Faculty Receiving M.Tech/ Ph.D. during the Assessment Year		
Ms. Sujata Sinha	MA (English)	2007	Sr. Lecturer and 15/7/2014	50%	_	_	2	_	18	Regular
Mr.Ashish Kumar Pandey	MA (English)	2012	Sr. Lecturer and 25/8/2017	70%	_	_	9	_	6	Regular
Mr. Sachin Mishra	M.Sc. (Maths)	2012	Lecturer and 4/2/2016	50%	_	_	2	_	7	Regular
Dr. Abhiram Shukla	Ph.D. (Maths)	1998	Sr. Lecturer and 4/8/2014	25%	25%	_		_	18	Regular
Mr. Vinay Yadav	M.Sc. (Physics)	2007	Sr. Lecturer and 12/9/2013	50%	_	_	_	_	8	Regular
Dr. Shri Prakash Mishra	Ph.D. (Chemistry)	2002	Sr. Lecturer and 4/9/2017	50%	_	_	4	_	17	Regular

Mr. Dharmesh Srivastava	MA (English)	2001	Sr. Lecturer and 17/8/2011	50%	–	–	2	–	16	Regular
Mr. Shiva Arun	M.Sc. (Chemistry)	2010	Sr. Lecturer and 16/3/2018	30%	–	–		–	2.8	Regular
Mr. Pankaj Kumar Yadav	M.Tech	2010	Sr. Lecturer and 15/07/2014	25%	25%	–	6	–	6	Regular
Mr. Gaurav Kumar Ojha	M.Tech	2009	Sr. Lecturer and 15/07/2014	–	50%	–	6	–	8	Regular
Mr. Gyanendra Kumar Yadav	M.Tech	2012	Sr. Lecturer and 12/08/2017	50%	50%	–	6	–	5	Regular
Mr. Chandan Kumar	M.Tech	2014	Sr. Lecturer and 29/01/2018	–	50%	50%	14	–	5	Regular
Mr. Krishna Gopal Sinha	M.Tech	1990	HOD and 15/07/2013	–	50%	50%	6	–	29	Regular
Mr. Aditya Prakash Yadav	M.Tech	2009	Sr. Lecturer and 11/07/2017	50%	50%	–		–	6	Regular
Mr. Ankit Singhal	B.Tech	2008	Sr. Lecturer and 26/07/2010	50%	50%	–		–	11	Regular
Mr. Yusuf Khan	M.tech	2008	Sr. Lecturer and 23/08/2017	50%	–	–	3	–	8	Regular
Mr. Anurag Singh	M.Tech	2013	Sr. Lecturer and 30/01/2018	–	100 %	–	5	–	2	Regular
Ms. Priti Singh	M.Tech	2012	Sr. Lecturer and 15/06/2015	–	50%	50%	5	–	7	Regular

Mr. Jitendra Kumar Kannaujiya	B.Tech	2014	Lecturer and 01/10/2015	_	50%	50%		_	2	Regular
Mr. Anoop Kumar Singh	M.Tech	2010	Sr. Lecturer and 07/10/2015	_	_	30%	4	_	5.5	Regular
Mr. Adhir Tandon	M.Tech	1988	HOD and 10/07/2018	_	50%	_	11	_	20	Regular
Mr. Ajhrudin Ansari	B.Tech	2012	Sr. Lecturer and 02/03/2015	100 %	_	_	3		7	
Dr. Manoj Mehrotra	Ph.D. (Marketing)	1982	Principal and 14/7/2010	_	_	_	12	_	35	Regular
Dr. Rachana Kumari	Ph.D. (Managerial Economics)	1997	Sr. Lecturer and 02/11/2015				11	_	13	Regular

Faculty Information: CAYm1 (2017-18)

Name of Faculty Member	Qualification	University Year of Graduation	Designation and date of joining the institution	Distribution of Teaching Load (%)			Academic Research		Years of Experience	Nature of Association (Regular/ Contract)
				I Year	II Year	III Year	Research Paper Publication	Faculty Receiving M.Tech/ Ph.D. during the Assessment Year		
Ms. Sujata Sinha	MA (English)	2007	Sr. Lecturer and 15/7/2014	50%	–	–	2	_	17	Regular
Mr.Ashish Kumar Pandey	MA (English)	2012	Sr. Lecturer and 25/8/2017	70%	–	–	9	_	5	Regular
Mr. Sachin Mishra	M.Sc. (Maths)	2012	Lecturer and 4/2/2016	50%	–	–	2	_	6	Regular
Dr. Abhiram	Ph.D. (Maths)	1998	Sr. Lecturer	25%	25%	–		_	17	Regular

Shukla			and 4/8/2014							
Mr. Vinay Yadav	M.Sc. (Physics)	2007	Sr. Lecturer and 12/9/2013	50%	–	–	–	–	7	Regular
Dr. Shri Prakash Mishra	Ph.D. (Chemistry)	2002	Sr. Lecturer and 4/9/2017	50%	–	–	4	–	16	Regular
Mr. Dharmesh Srivastava	MA (English)	2001	Sr. Lecturer and 17/8/2011	50%	–	–	2	–	15	Regular
Mr. Pankaj Kumar Yadav	M.Tech	2010	Sr. Lecturer and 15/07/2014	25%	25%	–	6	–	5	Regular
Mr. Gaurav Kumar Ojha	M.Tech	2009	Sr. Lecturer and 15/07/2014	–	50%	–	6	–	7	Regular
Mr. Gyanendra Kumar Yadav	M.Tech	2012	Sr. Lecturer and 12/08/2017	50%	50%	–	6	–	4	Regular
Mr. Chandan Kumar	M.Tech	2014	Sr. Lecturer and 29/01/2018	–	50%	50%	14	–	4	Regular
Mr. Krishna Gopal Sinha	M.Tech	1990	HOD and 15/07/2013	–	50%	50%	6	–	28	Regular
Mr. Aditya Prakash Yadav	M.Tech	2009	Sr. Lecturer and 11/07/2017	50%	50%	–		–	5	Regular
Mr. Ankit Singhal	B.Tech	2008	Sr. Lecturer and 26/07/2010	50%	50%	–		–	10	Regular

Mr. Yusuf Khan	M.tech	2008	Sr. Lecturer and 23/08/2017	50%	–	–	3	–	7	Regular
Mr. Anurag Singh	M.Tech	2013	Sr. Lecturer and 30/01/2018	–	100 %	–	5	–	1	Regular
Ms. Priti Singh	M.Tech	2012	Sr. Lecturer and 15/06/2015	–	50%	50%	5	–	6	Regular
Mr. Jitendra Kumar Kannaujiya	B.Tech	2014	Lecturer and 01/10/2015	–	50%	50%		–	1	Regular
Mr. Rahul Katiyar	B.Tech	2012	Lecturer and 04/10/2013	–	50%	50%		–	2	Regular
Mr. Anoop Kumar Singh	M.Tech	2010	Sr. Lecturer and 07/10/2015	–	–	30%	4	–	4.5	Regular
Mr. Ajhrudin Ansari	B.Tech	2012	Sr. Lecturer and 02/03/2015	100 %	–	–	3		6	
Dr. Manoj Mehrotra	Ph.D. (Marketing)	1982	Principal and 14/7/2010	–	–	–	12	–	34	Regular
Dr. Rachana Kumari	Ph.D. (Managerial Economics)	1997	Sr. Lecturer and 02/11/2015	–	–	–	11	–	12	Regular
Mr. Priyank Srivastava	M.Tech	2010	Sr. Lecturer and 15/7/2014	–	–	–	3	–	6	Regular

Faculty Information: CAYm2 (2016-17)

Name of Faculty Member	Qualification	Year of Grad	and date of joining	Distribution of Teaching Load (%)	Academic Research	Years of	Nature of Associati

				I Year	II Year	III Year	Research Paper Publication	Faculty Receiving M.Tech/ Ph.D. during the Assessment Year	Experience	on (Regular/ Contract)
Ms. Sujata Sinha	MA (English)	2007	Sr. Lecturer and 15/7/2014	50%	–	–	2	–	16	Regular
Mr. Sachin Mishra	M.Sc. (Maths)	2012	Lecturer and 4/2/2016	50%	–	–	2	–	5	Regular
Dr. Abhiram Shukla	Ph.D. (Maths)	1998	Sr. Lecturer and 4/8/2014	25%	25%	–		–	16	Regular
Mr. Vinay Yadav	M.Sc. (Physics)	2007	Sr. Lecturer and 12/9/2013	30%	–	–	–	–	6	Regular
Mr. Dharmesh Srivastava	MA (English)	2001	Sr. Lecturer and 17/8/2011	50%	–	–	2	–	14	Regular
Mr. Pankaj Kumar Yadav	M.Tech	2010	Sr. Lecturer and 15/07/2014	50%	–	–	6	–	4	Regular
Mr. Gaurav Kumar Ojha	M.Tech	2009	Sr. Lecturer and 15/07/2014	25%	25%	–	6	–	6	Regular
Mr. Krishna Gopal Sinha	M.Tech	1990	HOD and 15/07/2013	–	50%	50%	6	–	24	Regular
Mr. Ankit Singhal	B.Tech	2008	Sr. Lecturer and 26/07/2010	50%	50%	–		–	9	Regular
Ms. Priti Singh	M.Tech	2012	Sr. Lecturer and 15/06/2015	–	50%	50%	2	2017	5	Regular

Mr. Jitendra Kumar Kannaujiya	B.Tech	2014	Lecturer and 01/10/2015	_	50%	50%		_	2	Regular
Mr. Rahul Katiyar	B.Tech	2012	Lecturer and 04/10/2013	_	50%	50%		_	3	Regular
Mr. Anoop Kumar Singh	M.Tech	2010	Sr. Lecturer and 07/10/2015	_	_	30%	2	_	3.5	Regular
Mr. Akhilesh Kumar Verma	B.Tech	2009	Lecturer and 24/08/2013	50%	50%	_		_	6	Regular
Mr. Amit Kumar Singh	B.Tech	2007	Lecturer and 15/07/2013	_	50%	50%		_	6	Regular
Ms.Arpita Asthana	B.Tech	2010	Sr. Lecturer and 21/07/2011	50%	50%	_		_	6	Regular
Mr. Neeraj Kumar Yadav	B.Tech	2013	Lecturer and 21/09/2015	_	50%	50%		_	2	Regular
Mr. Amit Kumar Singh	M.Tech	2011	Sr. Lecturer and 25/07/2015	30%	70%	_		_	2	Regular
Mr. Ajhrudin Ansari	B.Tech	2012	Sr. Lecturer and 02/03/2015	100 %	_	_	2	_	5	Regular
Mr. Vivek Saraswat	M.Tech	2001	Sr. Lecturer and 03/09/2013	50%	50%	_		_	6	Regular
Dr. Manoj Mehrotra	Ph.D. (Marketing)	1982	Principal and 14/7/2010	_	_	_	12	_	33	Regular
Dr. Rachana Kumari	Ph.D. (Managerial Economics)	1997	Sr. Lecturer and 02/11/2015	_	50%	50%	11	_	11	Regular
Mr. Priyank Srivastava	M.Tech	2010	Sr. Lecturer and 15/7/2014	_	100 %	_	3	_	5	Regular

5.1 Student faculty ratio(SFR) + Availability of HoD

Student Faculty Ratio = N/F;

F = No. of Faculty = (a+b-c) for every assessment year

a = Total no. of fulltime regular faculty serving fully to all years of this program

b = Total no. of full-time equivalent regular faculty (considering fractional load) serving this program from other programs

c = Total no. of fulltime equivalent regular faculty (considering fractional load) of this program serving other programs

Year	Approved Intake (AI)	Actually Admitted Lateral Enrty Students (LE)	Total Students (N = AI+LE)	F	SFR=N/F
CAY (2018-19)	360 (CAY+CAYm1+CAYm2)	3 (CAYm1+CAYm2)	363	15.3	23.7254902
CAY (2017-18)	360 (CAYm1+CAYm2+CAYm3)	11 (CAYm2+CAYm3)	371	17.8	20.84269663
CAY (2016-17)	360 (CAYm2+CAYm3+CAYm4)	10 (CAYm3+CAYm4)	370	18.5	20
		Average SFR for all assessment years			**21.52272894**

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 (2018-19)	25	_
CAYm1 (2017-18)	24	_
CAYm2 (2016-17)	23	_

5.2 Faculty Qualifications

5.2.1 Faculty Qualification Index

FQ=2*(10X + 7Y)/F

where x is no of faculty with M.Tech (in case of humanities and science M.Phil./Ph.D.)

and y is no. of Faculty with B.Tech (In case of humanities and science MA/M.Sc.)

F is no. of faculty required to comply 1:25 faculty student Ratio

Years	X	Y	F	FQ=2*(10X+7Y)/F
CAY (2018-19)	15	9	15.3	27.84313725
CAYm1 (2017-18)	14	9	17.8	22.80898876
CAYm2 (2016-17)	10	13	18.5	20.64864865
Average Assessment				23.76692489

5.3 Faculty Retention

>=90 % faculties retained during the period of assessment (2018-19) keeping CAYm2(2016-17) as base year.

(i)total faculties in 2016-17=23, 23/23=100%

(i)total faculties in 2017-18=24, 24/23=104%

(iii)Total faculties in 2018-19=25,

25/23x100=108.6%

5.4 Faculty as participants in faculty development/training activities

Name of Faculty	Max 5 per faculty		
	CAYm2 2016-17	CAYm1 2017-18	CAY 2018-19
Mr. Gaurav Ojha	5	2	2
Mr. Dheeraj Kumar	5	1	1
Mr. Anoop Kumar Singh	0	2	2
Mr. Gyanendra Kumar Yadav	10	5	3
Mr. Adhir Tandon	0	0	2
Mr. K.G. Sinha	1	1	1
Mr. Pankaj Kumar Yadav	0	2	2
Mr. Chandan Kumar	0	7	6
Sum	21	20	19

RF = Number of faculty required to comply with 25:1 Student-Faculty ratio as per 5.1	15.3	17.8	18.5
Assessment = 6×Sum/0.5RF (Marks limited to 30)	16.47058824	13.48314607	12.32432432
Average Assessment over three years (Marks limited to 30)	14.09268621		

5.5 Product development, consultancy, manufacturing contracts, Testing contracts

Not Applicable

5.6 Faculty performance appraisal and development system(FPADS)

A. A well-defned FPADS instituted for all the assessment years

Annual performance appraisal Report form is being filled up by every faculty.

Self assessment is done by faculty and submitted to the HOD.

HOD perform the evaluation of faculties and submit it to Director/Director General for their final recommendation.

Director/Director General after recommendation, submit the appraisal to CEO and Secretary for promotion/increment.

5.6.B. Implementation of FPADS

The FPADS has been implemented at SMS. Lucknow from 01.08.2008.

FPADS has been implemented and faculties got promotion.

5.6.C. Details of Qualification Up-gradation of Faculty

Ms. Priti Singh	M.Tech	2017

Criterion 6	Facilities and Technical Support

6.1. Availability of adequate, well equipped classrooms to meet the curriculum requirements

There are four classes for Diploma Mechanical Engineering (Production). The classes details are mentioned below:

S.No.	Class Room No.	Area of Class Room (in sq.m.)	Seating Capacity	Type of utilization
1	207 (Saraswati Block)	78.17991984	60	Lecture Room
2	205 (Saraswati Block)	78.17991984	60	Lecture Room
3	204 (Yamuna Block)	78.17991984	60	Lecture Room
4	205 (Yamuna Block)	78.17991984	60	Lecture Room
5	207 (Yamuna Block)	78.17991984	60	Lecture Room
6	109 (Yamuna Block)	78.17991984	60	Lecture Room

All the classes are well equipped with black board, seats and tables.

All classes are well-ventilated, have adequate number of fans and lights.

6.2. Availability of adequate and well-equipped workshops, laboratories and technical manpower to meet the curriculum requirements

S.No.	Name of laboratory	No. of students per setup	Name of Important equipment (costing	Weekly utilization status (all the	Technical Manpower Support

		(Batch Size)	more than Rs.30000)	courses for which the lab is utilized)	Name of Technical staff	Designation	Qualification
1	General Workshop Practice I	30	NIL	6 DAYS/ WEEK	Mr. Arun Kumar Singh	Workshop Superintendent	AMIE Section A
					Mr. Sanjeev Kumar Srivastava	Lab Assistant	ITI Fitter
					Mr. Babu Deep Chandra	Lab Assistant	ITI Mechanist
					Mr. Vinod Vishawakarma	Lab Technician	Welding Technician, PMKVY
2	General Workshop Practice II	30	Lathe Machine, Surface Grinder, Milling Machine, Drilling Machine, Shaper Machine, CNC Machine	6 DAYS/ WEEK	Mr. Arun Kumar Singh &	Workshop Superintendent	AMIE Section A
					Mr. Sanjeev Kumar Srivastava	Lab Assistant	ITI Fitter
					Mr. Babu Deep Chandra	Lab Assistant	ITI Mechanist
					Mr. Vinod Vishawakarma	Lab Technician	Welding Technician, PMKVY
3	Applied Mechanics Lab	30	NIL	6 DAYS/ WEEK	Mr. Dhirendra Mishra	Lab Instructor	Diploma (ME)
4	Basic Of Mechanical and Electrical Lab	30	NIL	6 DAYS/ WEEK	Mr. Saroj Kumar	Lab Instructor	CTI
5	Engineering Materials Lab	30	Polishing Machine	6 DAYS/ WEEK	Mr. Saroj Kumar	Lab Instructor	CTI
6	Mechanics of Solids Lab	30	UTM, Rockbell / Brinell Hardness Machine, Impact Testing Machine	6 DAYS/ WEEK	Mr. Saroj Kumar	Lab Instructor	CTI
7	Hydraulics Lab	30	Pelton wheel turbine, Francis	6 DAYS/ WEEK	Mr. Dhirendra Mishra	Lab Instructor	Diploma (ME)

			Turbine				
8	Thermal Lab	30	Morse Test Lathe Machine, Universal Milling Machine, Shaper Machine	6 DAYS/ WEEK	Mr. Sanjeev Kumar Srivastava	Lab Assistant	ITI Fitter
9	Mechanical Workshop	30		6 DAYS/WEEK	Mr. Babu Deep Chandra	Lab Assistant	ITI (Machininst)
10	Production Technology Lab	30	Lathe machine, Surface Grinding Machine, Drilling Machine, Hardness (Rockwell/ Brinell) Tester	6 DAYS/WEEK	Mr. Babu Deep Chandra	Lab Assistant	ITI (Machininst)
11	Metrology Lab	30	NA	6 DAYS/WEEK	Mr. Dhirendra Mishra	Lab Instructor	Diploma Mechanical (Production)

6.3. Additional facilities created for improving the quality of learning experience in laboratories

Not Applicable

6.4. Laboratories: Maintenance and overall ambiance

Maintenance

Regular maintenance is done by lab technicians and lab attendant of all the laboratory of Mechanical Engineering and Workshop. Whenever any financial assistance for repair and maintenance of lab machinery is required, the Director provides the same.

Stock registers are maintained in each lab for availability of consumable and non-consumable equipments.

Safety measures are displayed in each laboratory.

Lab Assistants are available for maintenance of machinery and equipments available in the labs.

Calibration of equipment is done frequently for proper running during practical.

Ambiance

Department has full furnished State of Art laboratories with well-equipped equipment's which are used for the courses as per BTE, UP curriculum requirements.

The chairs and tables are in good condition.

Highly qualified and experienced faculties are there to teach them in all the fields of engineering.

BTE, UP laboratory manuals are distributed to the students.

Sufficient number of windows is available for ventilation and natural light.

Each Lab is equipped with black board, computer, internet facility and such other amenities.

Labs are used to carry projects and students carry out their mini and major project work.

6.5. Availability of computing facility in the department.

Number of computer terminals	Students Computer Ratio	Details of Legal Software	Details of Networking	Details of Printers, Scanners, etc.
60	1:1	NA	Local Area Network using star topology	Printer – HP Laser Jet Scanner - Cannon

6.6. Language Lab

Number of Computers	Students Computer Ratio	Number of hours per week utilization	Computer Lab Used	Beneficiary
30	1:1	02 hours	Lab-1 Saraswati Block	All First Year Students

Details of learning process

- SMS, Lucknow provides language laboratory to the students for their communication development.
- It is provided by means of videos resources, pronunciation, and grammar etc module.
- Since majority of the students are from Hindi Medium background, the language lab availability is a boon to the student week in communication.
- Weekly two hours are allotted for first year students.

Criterion 7	Continuous Improvement

7.1. Action taken based on the results of evaluation of each of the POs & PSOs

POs Target	POs Target Level	Attainment Level	Observations
PO1	Engineering Knowledge: Ability to apply knowledge of basic mathematics, science and engineering in order to solve Mechanical Engineering problems.		
PO1	1.83	1.764	Few students are week in solving basic analytical and mathematical problems
Actions Taken: Extra classes are taken for students for aiming at specific problems (problems of the students are addressed through counseling)			
PO2	Discipline Knowledge: Ability to apply specific discipline knowledge so as to solve broadly defined Mechanical Engineering problems.		
PO2	1.78	1.724	Few gaps were observed in the course outcome.
Action taken: To give student exposure to Mechanical Industries. Extra industrial visits will be conducted by the department. Higher target level will be set for upcoming batch.			
PO3	Experiments and Practice: Ability to conduct standard tests and experiments to analyze and interpret the results.		
PO3	1.8	1.74	Few students were observed to be week in practical.
Action Taken: Higher target will be set for next academic year. Up gradation of labs and equipment will be under taken.			
PO4	Engineering Tools: Ability to apply techniques, tools and skills of Mechanical Engineering to describe engineering technology activities.		
PO4	1.54	1.532	Almost Achieved

Action Taken: Higher target will be set for next academic year. Workshops, seminars, trainings will be performed.			
PO5	The Engineer and Society: Express knowledge to analyze societal, safety, health, cultural and legal issues.		
PO5	1.55	1.5	Almost Achieved
Action taken: Higher target will be set for next academic year. Programs will be planned on health awareness, industrial safety, and personality development.			
PO6	Environment and Sustainability: Demonstrate knowledge and need of sustainable development while understanding the influence of engineering solutions on environment.		
PO6	1.15	1.2	Achieved
Action taken: Higher target will be set for next academic year. Students are guided to come up with more environmental friendly and sustainable project ideas. Expert lecture on importance of engineering practices for environmental conservations are to be planned.			
PO7	Ethics: Apply ethical principles and commit to professional ethics as well as responsibilities and norms of engineering practice.		
PO7	1.42	1.436	Achieved
Action taken: Higher target will be set for next academic year. Group discussion topics in subjects like professional practices are selected in such a way to impart work and professional ethics. Expert lectures will be arranged with faculty from industries to discuss the work ethics and engineering practices.			
PO8	Individual and team work: Function effectively as an individual, and as a member or leader in diverse/multidisciplinary teams.		
PO8	1.38	1.404	Achieved
Action taken: Higher target will be set for next academic year.			
PO9	Communication: An ability to apply oral, written and graphical communication in both technical and non-technical environments and ability to use appropriate technical literature.		
PO9	1.73	1.684	Few students were observed to be weak in communications.
Action taken: Expert Lectures will be planned for technical as well as non-technical issues in order to enhance oral, written and graphical communications of the students. Students will be encouraged to attend more seminars and technical events to increase their stage confidence and public speaking.			
PO10	Life-long learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the context of technological changes.		
PO10	1.72	1.676	Students are given study and review assignments about latest technologies which are not covered in syllabus but it is practiced in industries. Students are encouraged to read technical magazines to get acquainted to latest technologies.
Action taken: Expert lectures will be conducted on topics like advances in Manufacturing Processes, CNC			

and CAD.			
PSO1	The program must demonstrate the understanding of principles to Design, Fabricate, Test, operations and working of basic mechanical systems and processes.		
PSO1	1.66	1.628	Almost Achieved
Action taken: More workshops and training will be organized.			
PSO2	Ability to design, test, evaluate and implement society needed products and utilize in manufacturing or processing such quality products with highest environment safety.		
PSO2	1.68	1.644	Almost Achieved
Action Taken: Better workshop facilities with basic manufacturing tools and equipment will be provided more exposure will be given to designing and drafting software.			

7.2. Improvement in Success Index of Students without backlogs

Item	LYG (2018-19)	LYGm1 (2017-18)	LYGm2 (2016-17)
Success Index (SI) from 4.2.1.	0.8	0.717	0.5

7.3. Improvement in Placement and Higher Studies

Item	LYG (2018-19)	LYGm1 (2017-18)	LYGm2 (2016-17)
Placement Index from 4.6	1.194	0.885	1.071

7.4. Improvement in Academic Performance of Final Year

Item	LYG (2018-19)	LYGm1 (2017-18)	LYGm2 (2016-17)
Academic Performance in Final Year from 4.5	67.43	68.97	68.12

7.5. Internal Academic Audits to Review Complete Academics & to Implement Corrective Actions on Continuous Basis

7.6. New Facility created in the Program

S.No.	Items	CAY (2018-19)	CAYm1 (2017-18)	CAYm2 (2016-17)
1	**CNC Milling Machine**	Available	Available	Available
2	**CCTV camera**	Available	Available	Not Available

Criterion 8	Student Support Systems

8.1. Mentoring system to help at individual level

Mentoring and guidance is provided by inviting career counselors and experts who have vast industrial exposure. The workshops for developing communication skills are being organized by the institution and T&P department take care of it.

The department organizes lecture talks of Industry persons in order to improve the skills of Students. Students are also provided with industrial visits to get industry exposure.

Personality development classes are held for the students of final year in order to make the professionally ready.

Each class is headed by Class Coordinator who monitors the activities and classes of the particular class. Class Coordinator is the faculty of the department who take care of smooth running of the class. Weak students are identified and are given remedial classes. Sharp students are being motivated. The class coordinator maintains a record of his class such as students list, attendance, time-table, marks of mid-semester tests, marks of end semester exams, Toppers list, etc.

Departmental faculty organizes workshops and value addition lectures in order to update latest trends of industries to the students.

Every Saturday is the day for Value Addition to the students. Various worshops, seminars, etc are organized at departmental level.

8.2. Feedback analysis and reward/corrective measures taken, if any

The feedback from students with respect to studies and facilities is done. Feedback analysis and remedial action thereafter are inbuilt in our mentoring system. The records are maintained by each and every department.

The feedback is collected for all the subjects and all subject faculties. Lecture progress report is taken from the students as well as faculties.

The feedback is then quantified and the HOD takes remedial action.

The feedback is taken from whole class.

8.3. Feedback on facilities

The feedback on facilities is built in our mentoring system for which the feedbacks are taken from the students. The Coordinator the class and the Head of department monitor the feedback of the facilities provided to the students. Every department collects feedback on facilities as per the format. Feedback is obtained on a scale of 1 to 5. Overall rating is then quantified and submitted to the HOD. The HOD is responsible for taking remedial action over the feedbacks.

8.4. Career Guidance, Training, Placement

A. Availability

Yes the Career Guidance, Training and Placement Cell exist at the institution level. The cell is headed by Dr. Jagdish Singh and the convenor is Mr. Surendra Srivastava.

Employable Enhancement Programme (EEP) is run by the institute to make the students employable. This cell is headed by Ms. Monica Saxena.

B. Management

One faculty coordinator from each department of the institution is held responsible to maintain and organize the data of career guidance, training and placement of the students. They are responsible to organize and control the entire activities of Training & placement Cell of the Institute.

The EEP cell coordinates and deliberate various kinds of tools and techniques to enhance the employability of students.

C. Effectiveness

The training list and placement list is attached earlier in the report.

8.5. Entrepreneurship Cell/Technology Business Incubator

A. Availability

Yes. The Cell exists at the institute level and head by Dr. (Prof) B.R. Singh.

B. Management

The function of the EDC is to encourage, motivate and provide training to the students so that they develop confidence and risk-taking abilities to take up entrepreneurship.

C. Effectiveness

Entrepreneurship Development Cell strives to inspire and generate a culture of innovation to help budding entrepreneurs to realize their potential.

Criterion 9	**Governance, Institutional Support and Financial Resources**

9.1. Organization, Governance and Transparency

9.1.1. State the Vision and Mission of the Institute

The Vision of SMS, Lucknow

To become a constantly growing center of excellence nurturing global centric professional leadership based on ethical and moral attributes.

The Mission of SMS, Lucknow

To create excellent learning ambience through innovation in teaching, research and consultancy for producing professionals capable of answering global challenges, demonstrating high ethical and moral standards.

9.1.2. Governing Body, Administrative setup, Function of Various Bodies, Defined rules procedures, recruitment and promotion policies

A. List of Governing body Composition; their memberships, functions and responsibilities

Following is the list of Governing Council (GC) of SMS, Lucknow

S.No.	Name	Post
1	Prof. S.K. Singh	Member
2	Prof. B.P. Singh	Member
3	Shri Shashi Prakash, IAS	Member
4	Lt. Gen. M.M. Lakhera	Member
5	Prof. K.P. Singh	Member
6	Prof. Rajeev Tripathi	Member

7	Shri G.K. Pillai	Member
8	Dr. C.M. Dwivedi	Member
9	Shri Ravendra Mishra	Member
10	Shri S.K. Singh	Member
11	Shri Ashok Kumar Singh	Member
12	Dr. M.P. Singh	Member
13	Er. Amitabh	Member
14	Shri Sharad Singh	Member
15	Prof. B.R. Singh	Member
16	Dr. N.B. Singh	Special Invitee
17	Prof. Manoj Mehrotra	Member Secretary

B. Minutes of the Meetings

The following businesses were transacted:

In the absence of the Chairman, Prof. B. P. Singh, senior-most professor present, was requested to chair the Meeting. The meeting started with the welcome address by the Chairman and thereafter a two-minute silence was observed to pay tribute to the departed soul of Late Dr. Bhishma Narain Singhji, the Chairman on Board of the Governing Council of SMS Lucknow. He introduced all the members present in the meeting and then requested Prof. M. Mehrotra, Director & Member Secretary, Governing Council, SMS Lucknow to conduct further proceedings of the meeting.

Prof. M. Mehrotra, Director & Member Secretary, Governing Council, SMS Lucknow also welcomed all the members present at the meeting and apprised them of the Pioneering Initiatives taken by SMS Lucknow over the past few years and highlighted the same on the occasion completion of ten years by the Institute. Thereafter the agenda items were taken-up one by one:

Item 1 : The minutes of the meeting of the Governing Council (GC) held on 12th November, 2017 at the Conference Hall at SMS Varanasi Campus were read and confirmed.

GC Annexure-I

Item 2 : Action Taken Report (ATR) on the decisions taken in the last meeting of Governing Council held on 12th November, 2017 was placed. **GC Annexure–II**

The Members considered the Report and expressed their satisfaction over the effective implementation of the decisions. They expressed their appreciation over the Pioneering Initiatives flyer, USP folder, NPTEL Achievement Brochure and Comprehensive Annual Report, presented to the House as addendum to the ATR.

Item 3: The Director & Member Secretary, GC briefed the Hon'ble members of the developments that took place in School of Management Sciences, Lucknow during the last one year (2017 – 2018):

a. The House was informed about the commencement of M.Com programme, affiliated to University of Lucknow from the session 2017-18.

b. The House was informed that School of Management Sciences, Lucknow became a Member of AMDISA (Association of Management Development Institutions in South Asia) with effect from April 2018 for a period of 3 years.

GC-Annexure – III

c. House was apprised about the successful organization and completion of the International Seminar on "Sources of Planet Energy, Environmental and Disaster Science: Challenges and Strategies" (SPEEDS-2017), was organized on the 9th & 10th December, 2017 in association with Council of Science & Technology (UP), The Institution of Engineers (India) U.P. State Center & Dr. A.P.J. Abdul Kalam Technical University, Lucknow. 152 papers were received, 120 papers were accepted, and 73 papers were presented at the Seminar. 38 selected papers were included in the "Proceedings of the Seminar" which was printed in the form of ISBN allotted book. Funding of Rs. 30,000/- from IEI was received for the event besides contribution from other sponsors. **GC Annexure -IV**

d. House was apprised about the successful organization and completion of the two Days National Conference titled "Achieving Business Synergy through Social, Spiritual and Technological Dimensions" was organized by School of Management Sciences in association with NHRD Lucknow Chapter on 24th and 25th February, 2018. More than 164 research papers were accepted and 63 were presented by research scholars from across the country in 3 technical sessions and it included 12 Skype presentations. A Special Issue of the Journal ADHYAYAN was published carrying 11 select papers based on the Conference theme.

GC Annexure - V

e. House was apprised about the successful organization and completion of the All India Seminar on "Sources of Planet Energy, Environmental and Disaster Science: Challenges and Strategies" (SPEEDS-2018), was conducted on the 24th & 25th November, 2018 in association with The Institution of Engineers (India) U.P. State Center & Dr. A.P.J. Abdul Kalam Technical University, Lucknow. 120 papers were received, 100 papers were accepted, and 63 papers were presented at the Seminar. Selected papers would be published in "Proceedings of the Seminar" in the form of ISBN allotted book. Funding of Rs. 30,000/- from IEI was received for the event besides contribution from other sponsors. **GC Annexure-VI**

f. The House was informed about opening of CISCO Networking Academy which was started on 22nd November 2018, to provide training on advanced networking technologies and

leading to the CCNA Certification.

GC Annexure-VII

g. The House was informed about the launch of the MICROSOFT Visual Studio Team Services, and CompTIA Networking Services w.e.f. 29th August 2018.

GC Annexure-VIII

h. The House was informed that SMS Lucknow became the approved ETS Testing Partner which is a unique collaboration, for conduct of various tests of international recognition such as TOEFL, in far off Eastern UP.

GC Annexure-IX

i. The House was informed about the remarkable achievements of SMS, Lucknow during the past one year:

1) SMS Lucknow was declared ranked at Number 1 position for Innovation & Start-up activities on 17th May 2018, in Dr. Kalam Entrepreneurship League (KEL), among 615 colleges (& 43 participating colleges) of Dr. APJ Abdul Kalam Technical University, Lucknow under TEQUIP III.

GC Annexure -X

2) 32nd rank in the all-India B-School Survey by Business India December 2017 issue.

GC Annexure -XI

3) Institutional Awards and Recognitions - SMS Lucknow:

GC Annexure- XII

i. Allotted one Unit of NSS by Government of Uttar Pradesh, w.e.f. on 17th February 2018.

ii. "Best Engineering College in North India" award under the Excellence in Education, Training & Development Awards 2018 organized by ASSOCHAM in Ranchi on 28th of February 2018.

iii. Ranked at 1st position among all 615 colleges (& 43 participating colleges) of AKTU, Lucknow for Innovation & Start-up activities under TEQUIP III and K-CIIS of AKTU was awarded on 27th July 2018 at New Delhi.

iv. "Brand Leadership Award 2018" in the field of Education at the UP Brand Leadership Award 2018 ceremony organized by ABP News on 18th Sept 2018 at Hotel Renaissance, Lucknow.

v. "Educationist Award" for outstanding contribution in the field of education, by Dainik Jagran I-Next in Lucknow on 23rd Sept 2018.

vi. "ASSOCHAM National Leadership Excellence Award in Technical Education (North)" by the Governor of Jharkhand at the National Summit on Leadership Excellence Awards ceremony 2018, at Ranchi on 26th October 2018.

4) Individual Awards **GC Annexure XIII**

i. Mr. Ashok Sen Gupta was conferred the "International Award for Professors with Excellence in Teaching in Higher Education 2017" by South Asia Management Association (India Chapter) at Asian Institute of Technology in Bangkok, Thailand on 2nd Dec, 2017.

ii. Prof. (Dr.) B.R. Singh was was awarded the 'UP Kshatriya Historical Samman 2018' for his immense contribution in the field of Environmental Science & Ecology, by UP Kshatriya Loksevak Parivar Mahasamiti, Lucknow, at SKD Academy, Lucknow on 17th June 2018.

iii. Prof. (Dr.) B.R. Singh was felicitated with a Citation Award by Dr. APJ Abdul Kalam Technical University, Lucknow for his outstanding contribution in the field of Technical Education on Teachers Day i.e. 5th Sept 2018 at IET Lucknow Campus.

iv. Prof. (Dr.) Manoj Mehrotra, Director, SMS Lucknow received the "Educational Leadership Award" at the Dewang Mehta National Education Award for Education Leadership and the 26th Business School Affaire ceremony organized by ABP News at Lucknow on 18th Sept 2018.

5) Dr. APJ Abdul Kalam Technical University, Lucknow has now approved SMS Lucknow as the Nodal Centre for providing "Value Education".

6) "Adhyayan- A Journal of Management Sciences" have been included as the Member of Journals Association of India since May 2018.

GC Annexure–XIV

The members applauded the great achievements of the institution and further attributed it to the concerted efforts of the Director and his team in taking an accelerated pace of intellectual developments over the past few years.

j. The House was informed about the rigorous efforts made by our T&P Cell, more than 77% of students from PGDM / MBA and 68% from B.Tech courses of all disciplines, 60% from UG Programmes of Lucknow University and 82% from Diploma in Engineering, i.e. and total Institute's average of 72% in aggregate of all eligible students got suitable job placements in prestigious organizations through the Institute efforts for the academic year ending 2017. **GC Annexure-XV**

The Members opined that a comparative placement status must be presented over the last year placements and must include average salary along with the highest.

k. For the academic session 2018-19, 73.13% admissions were secured in aggregate taking both the UG & PG courses, of the current intake. However the enrolment figure stood at 62.93%.

GC Annexure- XVI. The members opined that the drop out in admissions should be checked and retention percentage must be increased.

l. The Selection Committee for recruitment of faculty for different programmes was held from 24th to 29th of June, 2018, and submitted to the House for approval. The Members of the House opined that along with the list of Faculty recruited an exit list also needs to be presented.

GC Annexure-XVII

m. The House was informed about the Research initiatives that were undertaken at SMS Lucknow during the academic year 2017 - 18:

[A] 34 Research Paper Presentations were done by the faculty at various Seminar / Conferences; [B] 28 research papers were published in National & International Journals; [C] 9 Book Chapters was published; [D] Innovative projects developed under the Sir C V Raman

Centre for Research & Innovation, and received awards in 7th Dr. Kalam Startup Parikrama; [E] Activities of the Vedic Science Centre; [F] Start-up Mitra Conclave 2018 organized by Entrepreneurship Cell; [G] 43 Departmental Projects were carried out by the various B.Tech Departments - (ME-12, CE - 7, CS - 15, EC - 6, EN - 3). **GC Annexure-XVIII**

Item 4: The Final accounts and unaudited report of year ending March 31, 2018 **(GC Annexure – XIX a)** and the statement of the proposed budgets for the financial year 2018-19 **(GC Annexure - XIX b)** were considered by the House.

Item 5: The members considered the proposed fee-structure to be followed in regard to various courses for the academic year 2019-20, and approved the proposal.

(GC Annexure-XX)

Item 6 : The AQAR of NAAC submitted for the year 2017-18 was tabled before the House for review and record. **GC Annexure XXI**

Item 7: The members were informed about the proposed plan to organize a National Conference on "Transforming from a Developing to a Developed Economy" on 2nd & 3rd of March 2019 at the SMS, Lucknow campus, which was duly approved.

Item 8 : In other deliberations of the members of the House the following also emerged:

a) The AQAR should be first approved by IQAC and then approved by e tabled in the GC meeting for final approval.

b) Alumni working in Corporate must be involved in the placement activities and also as Mentors for the current students.

c) More efforts must be made by the Training & Placement Cell in increasing the networking of the Institute with Corporate and add more Recruiters every year.

d) The Income & Expenditure and the Proposed Budget must include items as per the requirement of NAAC, also the CA Certified Audited Statement of Accounts must be submitted before the Governing Council.

e) A Funding Cell may be created that must be entrusted the task of exploring the possibilities of getting funds from the Government for various activities like MDP, FDP, Seminars & Conferences, Research Projects, Socially oriented project, etc.

f) Essential to participate in NIRF survey next year.

g) New achievements of SMS and the Awards must be conveyed to the students, their parents, and all other stakeholders.

h) Feedback system for stakeholders should be in accordance with AQAR.

i) There is a need to change the pedagogy to more practical oriented. Move must be from a theoretical perspective to problem solving pedagogy. A workshop on improving the quality of pedagogy may also be organized.

j) Benchmark top Management Institutes and try to adopt their Best Practices.

k) Civil Engineering placements have to be improved and average salary package for B.Tech students also needs to be improved.

l) "Star Alumni Award" may be initiated to award the top performing Alumni each year and get a better connect with the alumni.

The meeting came to an end with a vote of thanks to the Chair and the members present.

B. Action-Taken Report

Action Taken Report for the meeting of Governing Council held on 12th November 2017.

Item Nos. of Decisions Taken in GC Meeting, 12/11/2017	**Actions taken / initiated by the Institute**
(A) Reiteration of GC 2017 Item 8 (a): Coordination of SMS Lucknow & Varanasi for admissions & Placements	The common courses for both the campus are PGDM, & MBA. For both these courses placement drives for several companies is conducted jointly. Some such companies are Mother Dairy, Ceasefire, ITC, Om Logistics, SBI Life Insurance, etc. For UG courses the eligibility norms and fee structures of affiliating Universities is different. Also there are some different courses offered at the two campuses. Thus it is not becoming possible to market different courses, having different admission criteria, jointly.
(B) Reiteration of GC 2017 Item 8 (b): Explore possibility of in-house development of anti-plagiarism software or purchase the same to check the quality of research papers & publications in Journals	Expertise is not available to develop the anti-plagiarism software in-house. Trusted and effective software like TURNITIN will cost around Rs.5 lakhs. MRI Publisher associated with the Institutes also does the plagiarism check @ Rs. 100/- per paper, which would amount to a total of around Rs. 40,000/- per annum, for all the papers to be published in the Journals and this would be economical.
(C) Reiteration of GC 2017 Item 8 (c): Mock interview sessions to be focused for improved	Conducting GD & Mock Interview sessions is a regular practice. To improve it further we are now implementing the practice test and interview sessions also to be conducted on the same day of the interview by the EEP Trainers & Faculty.

placement outcomes	Another practice is also being initiated to identify the strengths & weaknesses of each PG level student and work them up, right from the 2nd Semester onwards, so as to match the requirements of the companies that visit the campus for placements.
(D) Reiteration of GC 2017 Item 8 (d): Formation of joint committees reporting to Executive Secretary for (i) Improving Consultancy (ii) NBA Accreditation (Chairman Prof K P Singh) (iii) Participation in VUA (iv) Brand Building Committee- improving ranking	For (ii) In the Meeting of the Sub-committee of the NBA Accreditation held at SMS Lucknow Campus on 26th of June 2018, it was decided to get NBA Accreditation for eligible courses at both the campuses. Work is in progress to move application for NBA Accreditation for three programs B.Tech (CS), MBA, and Diploma in Engg (Civil), by December 2018. As regards (iii) instead of registration with VUA for global presence, we have opted for being a member of AMDISA (Association of Management Development Institutions in South Asia) which is again a global body and more focused on management. The membership of SMS Lucknow is approved by them for a period of three years. Regarding (iv) A Brand Building Committee has been formulated at SMS Lucknow campus which is taking concrete steps to increase the visibility of the brand of SMS in Electronic, Print and Social Media. Various achievements and activities of the Institute are being highlighted through these media to reach the target audience. Regular review meetings are also being conducted to monitor the progress of this Committee.
(E) Reiteration of GC 2017 Item 8 (e): Marketing of Journals to be done through reputed & established publishers; and also increase paid circulation	Names of Adhyayan & Samriddhi have been included in the Journals Catalog of Royal News & Subscription Agency. Talks in this regard are also in progress with other publishers of Journals, like, International Book Distributing Co. (Publishing division), Informatics Publishing Limited, and Sage Publication Company. Application for enlisting "Samriddhi" in Scopus has also been moved.
(F) Reiteration of GC 2017 Item 8 (f): Do scouting to get some senior, qualified, competent faculty and have PhD's as HoDs	For B.Tech (EN dept.) HoD is internal faculty who has completed Ph.D. from MNNIT, Allahabad and has been promoted as Professor. For B.Tech (CS dept. and CE dept.) HoD's with Ph.D. has been inducted. Senior faculty has been also taken in for EC & ME dept. In Management Department an Associate Professor having Ph.D. qualification has been inducted.
(G) Reiteration of GC 2017 Item 8 (g): Provide encouragement to faculty to complete PhD & additional increments on completion	All non Ph.D. faculty members are being encouraged to get themselves enrolled for pursuing Ph.D. Currently, we have 8 faculty members with Ph.D qualification, 8 more are pursuing Ph.D. in the Management department. In the Engineering department 15 faculty members with Ph.D. are there and 6 are pursuing their Ph.D. Motivation and encouragement is also provided by giving one increment to the faculty, from the the same month of submission of proof of completion of their Ph.D.
(H) Reiteration of GC 2017 Item 8 (h): Average	Will be done by the Registrar office and adequate data will be made available during the next meeting.

pass percentage to be mentioned while discussing results of each course.	
(I) Reiteration of GC 2017 Item 8 (h): Analyze reasons for decline of admissions in Engg; whether general reasons or specific to SMS. Benchmark with other institutes in the region.	Reasons are of general nature affecting the entire B.Tech demand. However, due to concerted efforts the admissions for B.Tech, in 2018 there has been an increase of 23% over the last year and overall 58% (158/270) seats of B.Tech were filled-up. Due to improved placement performance of B.Tech courses in 2018, the admissions in 2019 are also likely to improve. As regards Benchmarking with other private institutes in the Lucknow region offering Engineering courses, the average admissions vs. their intake of seats is around 35.75% for the year 2018. This very well explains the improved standing of SMS in the region for this academic year.
(J) Reiteration of GC 2017 Item 8 (h): ROI on marketing for admissions must be analyzed.	A total of Rs. 99,51,762/- was spent on marketing efforts and scholarships during the year 2017-18. Total admissions for the year 2018 were 724 from all the courses combined. This gives us the marketing cost per admission as Rs. 13,745/- per head.
(K) Reiteration of GC 2017 Item 8 (h): Strengths of Management courses have to be multiplied.	Efforts are being done by all faculty, staff and the marketing team. Separate faculty teams have been formulated for marketing the PG courses. Also several review meetings have been conducted and constructive steps have been taken to strengthen the PGDM course and its delivery, with a focus on attaining improved outcomes.
(L) Reiteration of GC 2017 Item 8 (h): Involve Alumni as mentors, win their trust and confidence, involve as Adjunct faculty, and some senior alumni as members of Governing Council.	Alumni records are updated regularly. Their help is also obtained in placements. Some of them are as members on various Committees. Possibility is being explored for attaching them as Adjunct faculty. Departmental Committees have also been formulated for review of academic inputs and syllabus that includes the following: • Director • HOD • 2 to 3 Industry persons • 1 to 2 Alumni
(M) Reiteration of GC 2017 Item 8 (h): New achievements of SMS must be highlighted & used as marketing tool	USP sheet about SMS (highlighting the achievements) has been prepared and widely used by the marketing team to highlight achievements of SMS to prospects and in other branding activities. Any new achievement is continuously posted and updated on social media like Facebook, Twitter, LinkedIn, and Whatsapp. It is also being regularly E-mailed to the alumni. The Biannual Newsletter, that highlights the important

	achievements and events at the campus, is also circulated to the students, their parents, industry and the academia.
(N) Reiteration of GC 2017 Item 8 (h): Explore to possibility of new courses like Sanskrit, Yoga, Business Analytics, Digital Marketing, Fashion Designing, etc.	Lucknow University does not give affiliation to the colleges to operate Certificate or Diploma courses on the mentioned streams. Short term courses like Digital Marketing was tried from a service provider of Google, but sufficient takers were not available to operate the course. • CISCO Networking Academy, Microsoft Visual Studio and CompTIA Networking have been opened to offer value additions to the students of SMS as well as outside. • AKTU has also approved SMS Lucknow as 'NODAL CENTRE' for offering "VALUE EDUCATION COURSES". • YOGA is being explored to be started in association with other private / government bodies. • NPTEL courses for value add are being promoted among the students.

C. Published service rules, policies and procedures with year of publication

The Governing Body of School of Management and Sciences has framed the rules and regulation to define and regulate the service condition of the employees of the Institution.

Service rules apply to all the employees.

The cadres of teachers along with number in each cadre, scales of pay, academic qualification, age limit, experience, mode of recruitment or any other matter governing their recruitment, promotion etc shall be as per regulation laid down by AICTE/UGC from time to time.

The policies and rules are available at the institute.

D. Extent of awareness among employees/students

All the Institutional rules and regulation are being informed to employees/students.

9.1.3. Decentralization in working and grievance redressal mechanism

A. List of name of faculty members who have been delegated powers for taking administrative decisions

Updates as per July 2019

S.No.	Desgnation	Person In-charge	Duties

1	Dean-Academics	Dr. Dharmendra Singh	Supervision and Overall academic Control of the Organization and teaching of Diploma courses and maintaining regularity / attendance & other records.
2	Diploma Coordinator	Mr. S.A.H.Rizvi (Coordinator) Mr. Mohd Aquib (Co-Coordinator)	Supervision and Overall academic Control of the Organization and teaching of Diploma courses and maintaining regularity / attendance & other records.
3	HOD CS EC EN ME CE HAS	Dr. Hemant Kr. Singh Mr. Rahul Misra Dr. Amarjeet Singh Mr. Adhir Tandon Dr. Prashant Kr. Gangwar Dr. P.K. Singh	To check attendance of students on daily basis. To ensure adherence of academic calendar activities and growth of external marks of students. To ensure the implementation of the Employability Enhancement Programme in an effective manner to the students. Priority be given to regularity & punctuality in providing various academic inputs at different levels.
4	NEWS LETTER	Dr. Mahendra Srivastava	To highlight and publish the details of academic and other related events & activities held at and through the institute during the period. To maintain the publication periodicity without fail, i.e. first week of July & January. To ensure a meaningful and robust contribution of the SMS News letter towards the overall brand equity of SMS.

5	Hostel Review & Grievance Redressal Committee	Dr. Dharmendra Singh & Mr. Satyajeet Asthana	To ensure the speedy redressal of student grievances related to the Hostel matters. To ensure the various facilities and other services, for the hostel for students. To further maintain an environment of complete discipline, with zero incidence of any type of ragging or undesirable practices.
	Campus Grievance Redressal Cell	Dr. Amarjeet Singh Ms. Smita Tripathi Mr. Rahul Singh, ME Mr. K.G. Sinha Mr. Pankaj Gupta Mr. Ashutosh Srivastava Ms. Diksha Shukla	To monitor the Grievance Portal and adhere ro monthly reporting required by AICTE To ensure the speedy redressal of student grievances or from any other stakeholder. Maintain proper records of the grievances received and disposal / action initated.
6	Cultural & Events Committee	Ms. Jyoti Kumari	Organise the Intra and Institutional cultural competitions To prepare the students for participating in cultural activities for various events. Event wise - subcommittee for that event must be constituted & submitted in advance- r Planning and organizing of the various programmes from time to time as mentioned
7	Anti-Ragging Committee	Prof. (Dr.) Manoj Mehrotra Dr. P.K. Singh	To ensure zero incidence of any kind of ragging to any of the student in the campus or the hostels.

8	Women's Anti-Harassment Committee	Dr. Rekha Singh Mr. Asad Kareem Usmani Ms. Sujata Sinha Ms. Pooja Verma Ms. Nishtha Upmanyu (MBA) Ms. Jayati Goswami (B.Com(H) Ms. Vanita Mishra (B.TechCS) Ms. Akriti Singh (B.TechCS) Mr. Ramesh Bhai	To ensure zero incidence of harassment towards women on the campus & in the hostels.
9	Proctorial Board Chief Proctor	Mr. Adhir Tandon	To ensure a hassle free & congenial environment with an absolute discipline among the students, both in the campus and hostels. For each weekly day, a Day Officer must be nominated by Chief Proctor. Day Officer should enter the day activities in the register & put up to the Chief Proctor. Other members should also visit the campus buildings, canteen hostel & main gates etc for smooth running of all institutional activities.
10	Training & Placement Cell Chairman	Dr. Jagdish Singh	To organize and control the entire activities of Training & placement Cell of the Insritute.
11	Employability Enhancement Programme (EEP)	Ms. Monica Saxena	To coordinate and deliberate various kinds of tools and techniques to enhance the employability of students.

12	Alumni Association Cell	Dr. Dharmendra Singh	To continuously explore the contacts with the passed_out students and organize meetings of Alumni Associat ion at dilferent cities across the cities such as Delhi, Mumbai, Bangalore, etc. To create a database in regard to our alumni.
13	Research & Innovation Cell	Dr. B. R. Singh	Promoting and facilitating research and consultancy activities of the Institute. Lead the Innovation Project, build and maintain Institute's capability to innovate and secure it's long term goal to devise innovative products, servlces or processes so as to benefit the society and the nation as a whole. Supervise, evaluate and validate the innovative products, services and processes to ensure that they are developed and implemented successfully. Create a culture that encourages uniqueness and innovation.
14	NBA Accreditation Cell	Prof Dr. B.R. Singh	To take up the various activities pertaining to the accreditation as well as association with National Board of Accreditation (NBA) and the Association of Indian Universities towards the developmental causes ol SMS. . Initiate the process in the month of September, 2018.

B. Specify the mechanism and composition of grievance redressal mechanism

The student grievances are posted on the online portable of SMS, Lucknow. The students initially have to register on the portal and then he/she have to post the complaint on the portal. On receiving the complaint, the Grievance Redressal Committee Coordinator or its members for both Hostel and Campus will coordinate the grievance and resolve the problem. After resolving the grievance, the report of the problem will be posted on the portal. Each grievance is resolved within two weeks from the date of complaint.

This committee not only solves the grievances of the students but also look after the same of faculty as well as staff of the institution. The procedure is similar for faculty and staff.

S.No.	Desgnation	Person In-charge	Duties
1	Hostel Review & Grievance Redressal Committee	Dr. Dharmendra Singh Chairman (Boys'Hostel) Dr. Hemant Kr. Singh Co-Chairman Members: Mr. Rahul Singh Mr. Alok Singh Dr. Ajay Singh Yadav Mr. Priyank Sharma Warden Boys Hostel Mr. Satyajeet Asthana Chairman (Girls'Hostel) Members: Ms. Suchita Vishwakarma Ms. Sujata Sinha Ms. Jyoti Kumari Warden Girls Hostel	To ensure the speedy redressal of student grievances related to the Hostel matters. To ensure the various facilities and other services, for the hostel for students. To further maintain an environment of complete discipline, with zero incidence of any type of ragging or undesirable practices.
2	Campus Grievance Redressal Cell	Co-ordinator: Dr. Amarjeet Singh Members: Ms. Smita Tripathi Mr. Rahul Singh, ME Mr. K.G. Sinha Mr. Pankaj Gupta Mr. Ashutosh Srivastava Ms. Diksha Shukla	To monitor the Grievance Portal and adhere ro monthly reporting required by AICTE To ensure the speedy redressal of student grievances or from any other stakeholder. Maintain proper records of the grievances received and disposal / action initated.

3	Anti-Ragging Committee	Prof. (Dr.) Manoj Mehrotra Dr. P.K. Singh Members: Mr. Amarjeet Singh Mr. T.P. Singh Mr. Manish Singh Dr. Dolly Roy Choudhary Warden Boys Hostel Warden Girls Hostel Mr. Rishabh Kapoor (Student Representative) Er. S.N. Singh (Parenr Representative) Mr. Surya Pratap Singh (M ed ia Representative) Shri Ramesh Bhai (NGO Representative)	To ensure zero incidence of any kind of ragging to any of the student in the campus or the hostels.
4	Women's Anti-Harassment Committee	Dr. Rekha Singh Mr. Asad Kareem Usmani Ms. Sujata Sinha Ms. Pooja Verma Ms. Nishtha Upmanyu (MBA) Ms. Jayati Goswami (B.Com(H) Ms. Vanita Mishra (B.TechCS) Ms. Akriti Singh (B.TechCS) Mr. Ramesh Bhai	To ensure zero incidence of harassment towards women on the campus & in the hostels.
5	Proctorial Board	Chief Proctor Mr. Adhir Tandon Dy. Chief Proctor Dr. Prashant Kumar Gangwar Members: Mr. Rahul Mishra Dr. Amarjeet Singh Dr. Hemant Kr. Singh Mr. K.G. Sinha Mr. Vinay Yadav Dr. V.D. Tripathi Ms. Sujata Sinha Dr. S.A.A. Rizvi Dr. Dolly Roy Choudhary Mr. Asad Raza	To ensure a hassle free & congenial environment with an absolute discipline among the students, both in the campus and hostels. For each weekly day, a Day Officer must be nominated by Chief Proctor. Day Officer should enter the day activities in the register & put up to the Chief proctor. Other members should also visit the campus buildings, canteen hostel & main gates etc for smooth

			running of all institutional activities.

9.1.5. Transparency and availability of correct/unambiguous information in public domain

The institute's website www.smslucknow.com includes all information about Diploma Department. Various committees, notices are regularly posted including the Academic Calendar, Tuition Fees, forthcoming events in the departments and all information related to examination.

9.2 Budget Allocation, Utilization, and Public Accounting at Institute Level

CAYm1: 2018-19

Total Income in 2018-19: Rs.132808510.70				**Actual Expenses in 2018-19: Rs.139547973.58**			**Total No. of students in 2018-19 : 1947**
Fee	**Govt.**	**Grants**	**Other Sources (Specify)**	**Recurring including salaries**	**Non-recurring**	**Special Projects/ Any other, specify**	**Expenses per student**
128513099.7	NA	NA	4295412	132359834.6	7188139	NA	71673.33004

Diploma Total Income in 2018-19: Rs. 20215110.58				**Actual Expenses in 2018-19: Rs. 21950896.24**			**Total No. of students in 2018-19 : 355**
Fee	**Govt.**	**Grants**	**Other Sources (Specify)**	**Recurring including salaries**	**Non-recurring**	**Special Projects/ Any other, specify**	**Expenses per student**
20215110.58	NA	NA	NA	20820201.98	1130694.261	NA	61833.51054

CAYm2: 2017-18

Total Income in 2017-18: Rs.124787682.56				**Actual Expenses in 2017-18: Rs.129781950.20**			**Total No. of students in 2017-18 : 1918**
Fee	**Govt.**	**Grants**	**Other Sources (Specify)**	**Recurring including salaries**	**Non-recurring**	**Special Projects/Any other, specify**	**Expenses per student**
122216108	NA	NA	2571574	122071455.2	7710495	NA	67665.25036

Diploma Total Income in 2017-18: Rs. 19224593.79				**Actual Expenses in 2017-18: Rs. 19994003**			**Total No. of students in 2017-18 : 325**
Fee	**Govt.**	**Grants**	**Other Sources (Specify)**	**Recurring including salaries**	**Non-recurring**	**Special Projects/Any other, specify**	**Expenses per student**
19224593.8	NA	NA	NA	18806136	1187867	NA	61520.00923

CAYm3: 2016-17

Total Income in 2016-17: Rs. 131196563.09				**Actual Expenses in 2016-17: Rs. 135703163.58**			**Total No. of students in 2016-17: 1922**
Fee	Govt.	Grants	Other Sources (Specify)	Recurring including salaries	Non-recurring	Special Projects/Any other, specify	Expenses per student
119684065	NA	NA	11512527	120595650	15107513	NA	70605.18396

Diploma Total Income in 2016-17: Rs. 18826303.42				**Actual Expenses in 2016-17: Rs. 19472987**			**Total No. of students in 2016-17 : 306**
Fee	Govt.	Grants	Other Sources (Specify)	Recurring including salaries	Non-recurring	Special Projects/Any other, specify	Expenses per student
18826303.4	NA	NA	NA	17305105	2167882	NA	63637.21242

9.3. Department Specific Budget Allocation, Utilization

Total Budget at Department Level for 2018-19

Total Budget in 2018-19: Rs. 13800000		Actual expenses in 2018-19: Rs. 13603372.31	
Recurring	**Non-Recurring**	**Recurring**	**Non-Recurring**
13000000	800000	12902660.38	700711.9366

Total Budget at Department Level for 2017-18

Total Budget in 2017-18: Rs. 13000000		Actual expenses in 2017-18: Rs. 12242481.84	
Recurring	**Non-Recurring**	**Recurring**	**Non-Recurring**
12200000	800000	11515141.74	727340.1015

Total Budget at Department Level for 2016-17

Total Budget in 2016-17: Rs. 13000000		Actual expenses in 2016-17: Rs. 12600168.06	
Recurring	**Non-Recurring**	**Recurring**	**Non-Recurring**
11500000	1500000	11197420.88	1402747.176

9.4. Library and Internet

9.4.1 Quality of learning resources

Purchase Year	Amount in Rs.
2016-17	76206.00
2017-18	45475.70
2018-19	79436.45

Total Text Books	Reference Books	Total Volumes
1848	447	2295

Year	Journals		Magazines
	National	International	
2017	16	4	12
2018	11	3	12
2019	11	3	12

Newspapers

Daily nine (9) newspaper of which five (5) are Hindi and four (4) are English.

9.4.2 Internet

A. Available bandwidth

Fiber optic network is used for the internet.

Free, unlimited access to internet for all stakeholders inside the campus

Name of Internet Provider	Airtel
Available Bandwidth	15 MBPS
Wi-Fi Availability	Yes, by excess points
Internet /Wi-Fi access in labs, library and offices of Departments	Yes
Security Arrangements	Microsoft Security Essential

9.5 Institutional Contribution to the community development/Go-Green

C.V. Raman Center for Research and Innovation, an initiative of SMS, Lucknow has circulated several steps to contribute towards community development and going green. They are change a light bulb by CFL or LED lights, drive less, recycle more and buy recycled products, use less hot water, check your tyres for good mileage, avoid products with a lot of packaging, adjust your thermostat, plant a tree, turn off electronic devices when not in use, stay informed.

SMS, Lucknow has adopted 5 villages under Unnat Bharat Abhiyan and making them aware about ban of single use plastic, cleanliness, and utilization of renewable energy resources. The names of the villages are Dularmau, Bedariya, Kuryani, Salauli, Malauli.

SMS, Lucknow campus has installed 38.5 kW Solar Roof Top Plant which is generating approximate 150-190 units per day and on holidays less power is automatically fed to grid for contributing to society need.

SMS, Lucknow campus has installed two recharging wells to cater entire rain water of the campus to get recharged into earth.

SMS, Lucknow campus has been declared Completely Green Campus as per Green Audit Report. It is Evironmental Friendly College because along with many developmental processes the college is not ignoring the environmental importance at any stage of its development.

9.6 Alumni Performance and Connect

The School of Management and Sciences, Lucknow has formed an Alumni Association to provide an active framework for professional development, interaction and networking for the holistic development of alumni association. All those students who have completed their diploma, under graduation and post graduation programs at SMS, Lucknow are eligible for membership in SMS Alumni Association.

Most of the members of this association today work in different domestic and multinational companies. Even some have stepped into higher education and research work.

It facilitates networking among alumni for reunion, meetings and other activities.

It also helps them for career development. This also tries for interaction of alumni with current SMS students.

Alumni meet is conducted every year.

We have Alumni registration portal on our website. We also invite our alumni for guest lectures and seminars. Some of distinguished alumni are also a part of our IQAC cell.

Dated : 17-10-2019

Declaration

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

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 in force as on date and the institute shall fully abide by them.

It is submitted that information provided in this Self-Assessment Report is factually correct. I understand and agree that an appropriate disciplinary action against the Institute will be initiated by the NBA in case any false statement/information is observed during pre-visit, visit, post visit and subsequent to grant of accreditation.

Date : 17-10-2019

Prof. (Dr.) Manoj Mehrotra

Director

Place : Lucknow

ANNEXURE 1

LIST OF PROGRAM OUTCOMES

PO1	Basic Knowledge: Ability to apply knowledge of basic mathematics, science and engineering in order to solve Mechanical Engineering problems.
PO2	Discipline Knowledge: Ability to apply specific discipline knowledge so as to solve broadly defined Mechanical Engineering problems.
PO3	Experiments and Practice: Ability to conduct standard tests and experiments to analyze and interpret the results.
PO4	Engineering Tools: Ability to apply techniques, tools and skills of Mechanical Engineering to describe engineering technology activities.
PO5	The Engineer and Society: Express knowledge to analyze societal, safety, health, cultural and legal issues.
PO6	Environment and Sustainability: Demonstrate knowledge and need of sustainable development while understanding the influence of engineering solutions on environment.
PO7	Ethics: Apply ethical principles and commit to professional ethics as well as responsibilities and norms of engineering practice.
PO8	Individual and team work: Function effectively as an individual, and as a member or leader in diverse/multidisciplinary teams.
PO9	Communication: An ability to apply oral, written and graphical communication in both technical and non-technical environments and ability to use appropriate technical literature.
PO10	Life-long learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the context of technological changes.

LIST OF PSO's

PSO1	The program must demonstrate the understanding of principles to Design, Fabricate, Test, operations and working of basic mechanical systems and processes.
PSO2	Ability to design, test, evaluate and implement society needed products and utilize in manufacturing or processing such quality products with highest environment safety.