



DEPARTMENT OF MECHANICAL ENGINEERING

ACTION TAKEN REPORT

202

(External Academic Audit for the Academic Year 2021-22)

The external academic audit was held in the department of Mechanical engineering on 28-01-2023. The members of the audit team were 1. Dr. S.V.S.K Deepak Kumar, Associate Professor & HoD, Department of Mechanical Engineering, Centurion University of Technology & Management, Vizianagaram. 2. Dr. M. Praveena Chakravarthy, Manager (production), Hindustan shipyard limited, A Govt of India undertaking, Ministry of Defence, Visakhapatnam

The comments/ feedback/observations made by the team and the action taken thereof are recorded as below:

1. Comment/ Suggestion/Observation:

The curricula of all subjects have to be designed such that both slow and fast learners are able to assimilate knowledge simultaneously.

Action taken:

The design and development of curriculum is based on the feedback assimilated from all the stakeholders over a period of time. The feedback is also collected with regards to the additional topics that could be included in the subjects in order to give the best inputs to the students. The syllabus for the subjects is framed following a set of guidelines, wherein the fundamental topics are covered in the first unit and thereafter the advanced topics are introduced in the latter units. This systematic approach has been effective as both slow and fast learners can learn simultaneously.

2. Comment/ Suggestion/Observation:

Separate tutorial rooms have to be created to provide additional support to students who need extra help.

Action taken:

The department building houses 13 number of class rooms, which is sufficient to accommodate all academic years of both UG and PG students. Considering that laboratories are a part of the course work, some of the class rooms will be un-occupied during practical classes these class rooms can be used for conducting tutorial classes.

3. Comment/ Suggestion/Observation:

Mini Projects can be introduced in core courses where ever possible.

Action taken:

Subjects like Design Thinking which act as breadboards to develop innovative thinking are part of the curriculum. The syllabus for this subject is designed in such a way that

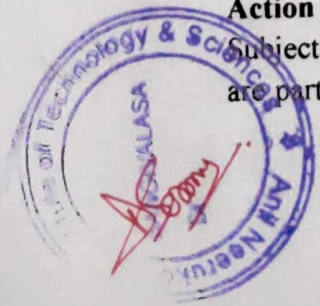
To
External Audit file
1.2.23

PROFESSOR & HEAD

Department of Mechanical Engineering

ANIL NEERUKONDA INSTITUTE OF TECHNOLOGY & SCIENCE

Sangivalasa-531 162 VISAKHAPATNAM Dist A P



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mini projects, development of novel models are carried out by students at the end of every unit. Such a protocol will include in the subjects where ever feasible.

4. Comment/ Suggestion/Observation:

No comments

Action taken:

Nil

5. Comment/ Suggestion/Observation:

Improvement is necessary in the overall performance of students.

Action taken:

The department has implemented several measures to improve the performance of students in exams. Conducting class tests periodically after the completion of every unit is one of the measures that has produced positive results. Extra classes beyond the normal hours are also included in the regular timetables to enhance the faculty - students contact and interaction period. This has also produced fruitful results has the concerned faculty can use this extra hours for clearing doubts, conducting tutorial classes etc.

The department will continue with this methodology it has been producing effective results.

6. Comment/ Suggestion/Observation:

Performance in Competitive exams needs to be improved.

Action taken:

The number of students who are appearing for GATE has diminished since last year, as the students are mostly opting for placements in software sector. Moreover the job prospects in the software field have improved appreciably for students, who have a knack towards programming. However, the number of students opting for higher studies overseas has been steadily increasing.

7. Comment/ Suggestion/Observation:

Need to implement course outcome survey.

Action taken:

This course outcome survey will be put into practice.

8. Comment/ Suggestion/Observation:

The department should focus on getting sponsored projects.

Action taken:

The department faculty have been applying for research projects to external funding agencies. The department expects at least a few of them to be sanctioned.

9. Comment/ Suggestion/Observation:

Corrective measures for non attainment of CO's & PO's have to be implemented and recorded in course files.

Action taken:

The attainment of CO's is calculated for all subjects and recorded in the course files by the faculty. The reasons for non-attainment of CO's are reviewed by the concerned faculty and put up in the same file. The corrective measures that are to be implemented for non-attained CO's will also be reflected in the course files hereafter.

1.2.23
HOD

Mech. Engg.

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Department of Mechanical Engineering
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Anil Neerukonda Institute of Technology & Sciences (Autonomous)

(Permanent Affiliation by Andhra University & Approved by AICTE
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DEPARTMENT OF MECHANICAL ENGINEERING

Format for Academic Audit (To be filled up by Academic Experts) Academic year 2021-22

1. **Name of the Auditor:** Dr. S V S K DEEPAK KUMAR,

Designation: Associate Professor & HoD

Address: Department of Mechanical Engineering

Centurion University of Technology and Management (CUTMAP)

VIZIANAGARAM, 535003, Andhra Pradesh

Contact no: 9000291444

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S. Deepak..
28/01/2023

2. **Name of the Auditor:** Dr. M. Praveena Chakravarthy

Designation: Manager (production)

Address: Hindustan shipyard limited,

A Govt of India undertaking,

Ministry of Defence

Visakhapatnam

Contact no: 9493792564

Email ID: dr.mpchakravarthy@gmail.com

M.P. Chakravarthy
28/01/2023

3. **The days and dates of visit:** 28-01-2023



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(Permanent Affiliation by Andhra University & Approved by AICTE
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DEPARTMENT OF MECHANICAL ENGINEERING

Features of Academic Audit Format

- Academic Audit Format is designed to incorporate the guidelines provided by National Knowledge Commission for various parameters.
- Academic Audit Format is designed to incorporate the most of the parameters related to various stake holders.
- Evaluation is based on nine different parameters indicating academic ambience at the campus at the campus.
- Proper weightage to each parameter as shown below.

S. No.	Parameters of Evaluation	Max Marks
1.	Curricula	120
2.	Academic Facilities	100
3.	Teaching Learning proves	130
4.	Evaluation System	140
5.	Result	100
6.	General Academic Activities	100
7.	Feedback and Corrective Action	100
8.	Faculty Performance / Upgradation	110
9.	Attainment of CO's and PO's of all courses	100
10.	Total	1000

- Evaluation is more objective rather than subjective.
- Evaluation provides the specific information about the shortcomings.
- Academic Audit Format includes evaluation of system, students and facility.
- Evaluation of faculty includes evaluation by students as well as higher officer.
- Evaluation of students includes internal continuous evaluation, end semester evaluation, curricular and co-curricular and evaluation and placement.
- Evaluation includes infrastructural and other facilities provided by the institute / department for overall development of students.
- Academic Audit Format manual is being prepared to facilitate the institute / department and the auditor to furnish the information and to evaluate respectively.

Summary

Grading System:

S. No.	Parameters of Evaluation	Marks Obtained
1.	Curricula	115
2.	Academic Facilities	88
3.	Teaching Learning proves	107
4.	Evaluation System	129
5.	Result	68.28
6.	General Academic Activities	85
7.	Feedback and Corrective Action	73
8.	Faculty Performance / Upgradation	86
9.	Attainment of CO's and PO's of all courses	90
10.	Total	841.28

Grade	Details	Total Marks scored
A+	Excellent	800 and above
A	Good	700-799
B	Acceptable	600-699
C	Not-acceptable	Below 600

1. Strengths

- i) Good curriculum
- ii) Student involvement in various co-curricular activities, Faculty FDPs, Publications.

2. Weaknesses

- i) Placements
- ii) Pass percentage
- iii) Consultancy works

3. Suggestions based on information

Need to be improved in the areas of teaching weak students, improvement of coding skills & programming skills to get more placements and students participation in competitive examinations for higher studies.

Name and signature of Auditor

1. S. Deepak 28/01/2023
2. M.P. Chakraborty 28/01/2023

1. Curricula

S. No.	Sub-Parameter	Marks Assigned	Marks scored
1.	Curricula content to provide understanding concepts of (with sufficient practical exposure)		
	Mathematics and basic sciences	5	5
	Basic Engineering subjects	5	5
	Management and Humanities	6	6
	Programme Core	30	30
	Elective Subjects	6	6
	Interdisciplinary elective subjects	4	3
	Open Elective/Emerging subjects in curricula	4	4
	NPTEL courses/MOOCs	4	3
	Communication and computer skills	5	5
	Proficiency in analysis, synthesis, modeling & simulation and problem-solving skills	5	5
	Innovative and creative abilities	5	5
	Human skills and relations, professional ethics, environment	4	4
	Entrepreneurial skills	4	3
	Hands on training and other industrial needs	4	4
	Self learning practices	4	4
2.	Do the curricula take care of slow and fast learners learning simultaneously ?	10	8
3.	Revision / Upgradation of the curriculum to incorporate appropriate new knowledge systems (based on no. of BoS/ APMC meeting)	15	15
Total		120	115
<p>Additional Comments / feedback / observations/ advice which may or may not be based on above points:</p> <p>Teachers may use different reading levels or provide additional resources for students who need more support, while challenging high-achieving students with more advanced materials and assignments.</p>			

2. Academic Facilities

S. No.	Sub-Parameter	Marks Assigned	Marks scored
1.	No of class rooms with LCDs	5	4
2.	No of laboratories and display of Cos and POs	5	5
3.	No of tutorial rooms	5	2
4.	Faculty rooms / cabins	5	5
5.	Equipments available (curricula and cost wise)	5	5
6.	Computing facilities (including software)	10	8
7.	Research/Project laboratory	10	10
8.	Electric power available for 24 x 7 and power backups	5	5
9.	Audio visual facilities	5	5
10.	Class rooms furniture (quantity and quality)	5	4
11.	Laboratories furniture (quantity and quality)	10	8
12.	No of books e-library, online journals and printed journals related to programme in the central library	10	9
13.	Department library /life long learning resources	10	9
14.	Internet and Wi-Fi facility	5	5
15.	Improvement made in infrastructural facilities during last year	5	4
Total		100	88
<p>Any additional comments / feedback / observations / advice which may or may not be based on above points:</p> <p>No of tutorial rooms may be increased to provide additional support to students who need extra help.</p>			

3. Teaching – Learning Process

Sr. No.	Sub-Parameter	Marks Assigned	Marks scored
1.	Theory Courses		
	Course File (Syllabus sheet, Course material, content betond syllabus, MID question papers, Answer sheets, Assignments, External QP, Quizes and Activites)		
	% of subjects for which teaching plan (including books to be referred) is prepared and execution plan submitted at the end of semester (including quality of execution)	10	10
	Quality of teaching plan and notes prepared by faculty	10	9
	Quality of Assignments	10	8
	Case studies/ Mini Projects given as activity for core courses	10	5
	Novel techniques used for effective teaching learning process (including use of A/V aids, development of software/ teaching aids, use or available software, use of available learning resources etc.)	10	8
2.	Practical		
	Quality of experiments conducted (Do the experiments designed facilitate the students in generating creative thoughts ?)	10	7
	Availability of laboratory manual and its quality	10	9
	Maintenance of laboratory equipments and new addition	10	10
	New experiments designed by UG/PG Students	10	5
3.	Corrective action taken by department against the students who are absent to the classes regularly	10	10
4.	Staff development programs for Faculty and / or supporting staff including FDP / STTP etc.	10	6
5.	Actions taken by department to improve performance of academically weaker students	10	10
6.	Efforts taken by department to improve overall performance of students including Workshop / Short term course/Hackathons/ Tech fest outside institute etc.	10	10
	Total	130	107
Any additional comments / feedback / observations/ advice which may or may not be based on above points:			
Mini Projects can be introduced in core courses where ever possible.			

4. Examination and Evaluation System

Sr. No.	Sub-Parameter	Marks Assigned	Marks scored
1	Examination Process		
	Strict execution of academic calendar for all examinations	5	5
	Strict execution of academic calendar for declaration of result including revaluation, redressal etc.	5	5
	Transparency in the processes like internal assessment; scrutiny and declaration of result	5	5
	Appropriate weightage for continuous evaluation and end semester examination.	5	5
	Staff appointed for examination (invigilator, squad, office staff etc).	5	5
	Process of appointment of paper setters/ examiners / evaluators / moderators etc.	5	5
	Process of question paper printing and distribution (including quality and format of question paper)	5	5
2	Quality of internal question papers		
	Appropriate coverage of syllabus in class test and labeling of COs on the question paper	5	5
	Difficulty level of the question papers including numerical	5	3
	Innovation in question paper (Volume of repeated questions, correlation of question with competitive examinations)	5	3
3	Quality of external question papers		
	Coverage of all COs	5	5
	Difficulty level of the question papers (simple to pass and difficult to serve i.e. take care of average as well as sharp students)	5	3
	Do the questions, test and develop the problem –solving skills and students' proficiency in analysis and design?	5	4
	Whether the marks assigned to the questions appropriate? Are the model answers submitted by paper setters to Examination Cell	5	5
	Language / Clarity / Variety etc in questions (Majority of the questions should not be just like write short note/ explain / discuss etc.	5	3
4	Does the moderation of each question papers completed before paper printing ?	5	5
5	Assessment of Project work / Industrial training/ Internship term work		
	Continuous assessment of project works/seminars through rubrics	5	5
6	Assessment Process of theory external papers		
	Presence of Process for evaluating external papers	5	5
	Model answers and marking scheme	5	5
	Evaluation quality (% of students applying for revaluation and of change in mark cases)	5	5
	Average experience of evaluators	5	5
	Moderation process	5	5
	Revaluation and recounting of answer sheets within mentioned period	5	5
	Does the Complaint Redressal Committee exist to tackle the	5	5

5. Results

S.No	Sub Parameter	Marks Assigned	Marks Scored
1	Performance of Students in examinations (without backlogs)	60	37.93
	% of students passing IV year*0.15	$136/258*100*0.15$	8.97
	% of students passing III year*0.15	$139/252*100*0.15$	8.27
	% of students passing II year*0.15	$188/244*100*0.15$	11.56
	% of students passing I year*0.15	$101/166*100*0.15$	9.13
2.	Overall performance of students (with backlogs)	40	30.35
	% of students passing IV year*0.1	$222/258*100*0.1$	8.60
	% of students passing III year*0.1	$201/252*100*0.1$	7.97
	% of students passing II year*0.1	$188/244*100*0.1$	7.70
	% of students passing I year*0.1	$101/166*100*0.1$	6.08
	Total	100	68.28
Additional comments / feedback/ observations / advice which may or may not be based on above points: Improvement is necessary in the overall performance of students.			

6. General Academic Activities

S. No.	Sub-Parameter	Marks Assigned	Marks scored
1	Whether all activities performed as per academic calendar ?	10	9
2	Whether academic processes are student development centric ?	10	10
3	% of students actually enroll for co-curriculum activities in or out of the Institute <div style="text-align: center;"> 10 marks linearly distributed 00 marks </div> >70% 30% to 70% <30%	10	16
4	Whether co-curriculum activities of institute /department are evenly disturbed throughout the year?	5	4
5	Are emergency issues resolved by conducting Academic Council / Examination Committee meetings which are ratified in subsequent meetings ?	5	4
6	How much is overall placement of students (in % based on eligible students) and annual pay package ?	10	10
7	How is the performance of students in Extension of services through NSS / NCC /Unnath Bharath Abhiyan?	10	9
8	Industrial visits organized by department	10	9
9	Technical events organized by the department for faculty and students including STTP / Expert lectures / Model or project competition / GD/ etc.	10	7
10	Entrepreneurship/ Techno idea activities contest in the department	10	7
11	Performance in competitive examinations like GATE/ CAT/GRE etc	10	6
Total		100	85
Additional comments / feedback/ observations / advice which may or may not be based on above points: Competitive exams participation by the students needs to be Improvement			

7. Student's Feedback and Corrective Action

Sr. No.	Sub-Parameter	Marks Assigned	Marks scored
1	Feed back during the semester		
	Frequency of obtaining student's feedback (Meetings of CRCs etc)	20	20
	Corrective action taken at the departmental level	20	18
2	Suggestion box		
	Availability of suggestion box	5	5
	How frequently suggestion box is opened ?(Maximum marks for opening twice in a month)	5	4
	Corrective action taken for suggestions at the departmental level	10	8
3	Exit feed back		
	Attainment of POs for the academic year	10	10
	Corrective Action of attainment of POs	10	8
4	Survey on outcome of the course / individual class using web tools	20	0
	% of total courses for which survey is done * 20		
	Total	100	73
	Additional comments / feedback/ observations / advice which may or may not be based on above points:		
	Need to implement course outcome survey.		

8. Faculty Performance

Sr. No.	Sub-Parameter	Marks Assigned	Marks scored
1	Feedback from students (Department index on 15 points)	20	18
2	Performance appraisal	20	14
3	% of faculty received "outstanding" remark *0.2		
	% of faculty received "Excellent" remark *0.15		
	% of faculty received "positively good" remark *0.1		
3	Qualification enhancement of faculty	5	5
4	Overall performance of department faculty members , based on research paper published in journals, conferences and seminar.	15	15
5	MODROB/ TAPEC/ RPS and other sponsored projects received by the department	5	0
6	Participation of faculty as resource person outside the Institution	10	7
7	Performance of faculty, based on books publication, patent filed and awards.	10	9
8	Performance of faculty, based on consultancy and internal revenue generation (IRG)	10	3
10	Innovative ideas implemented by the faculty for overall development of students both in co-curricular (quality circle, hobby club etc) and extra curricular	10	10
11	Whether guided PG/ Research scholars	5	5
	Total	110	86
<p>Additional comments / feedback/ observations / advice which may or may not be based on above points:</p> <p>The department should focus on getting sponsored projects.</p>			

9. COs and POs of the Programme

Sr. No.	Sub-Parameter	Marks Assigned	Marks scored
1	Framing of COs to all the courses including theory, laboratory, project, Seminar, Industrial Training	15	15
2	Documentation of Justification table for CO-PO articulation table for all courses	15	15
3	Calculation of CO-PO attainment for all courses in the programme	20	20
4	Calculation of POs by indirect attainment (with reasonable sample size)	20	20
5	Reasons for non-attainment of COs and POs if any	15	10
6	Corrective measures for non-attainment of COs and POs	15	10
Total		100	90
Additional comments / feedback/ observations / advice which may or may not be based on above points: Corrective measures for non attainment of COs& Pos have to be improved.			

S. Deepale.
28/01/2023

M. P. Chakraborty
28/01/23