



# ANIL NEERUKONDA INSTITUTE OF TECHNOLOGY & SCIENCES (A)

## DEPARTMENT OF MECHANICAL ENGINEERING

(Permanently Affiliated to Andhra University, AICTE, Accredited by NBA Tier-I, NAAC)  
Sangivalasa-531162, Bheemunipatnam Mandal, Visakhapatnam Dt.  
Phone 08933-225084, 226395

22-01-2022

## ACTION TAKEN REPORT

### (External Academic Audit for the Academic Year 2020-21)

The external academic audit was held in the department of Mechanical engineering on 18-01-2022. The members of the audit team were 1. Dr.P.S.V. Ramana Rao, Registrar & Professor, Department of Mechanical Engineering, Centurion University of Technology & Management, Vizianagaram. 2. Dr. S.V.S.K Deepak Kumar, Associate Professor, Department of Mechanical Engineering, Centurion University of Technology & Management, Vizianagaram.

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

#### 1. Comment/ Suggestion/Observation:

Emphasis to be placed on improving the Entrepreneurship skills of students.

#### Action taken:

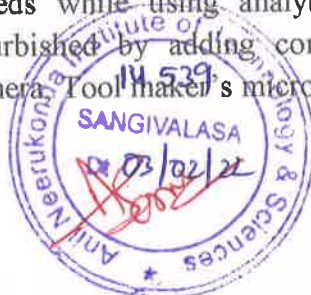
The institution has constituted an Entrepreneurship development cell (EDC) which comprises of faculty and students of all the pertinent department as members. The EDC organizes programmes frequently to imbibe the skills required for an budding Entrepreneur. These programmes have been arranged even during Covid- pandemic through virtual mode due to Covid pandemic.

#### 2. Comment/ Suggestion/Observation:

The facilities in Project lab have to be further improved.

#### Action taken:

The computation facilities are being improved by replacing the old computer systems with the latest i5 processor systems which will immensely improve the computational speeds while using analytical softwares. Further the project lab is also being refurbished by adding computer interface tool dynamometers, Thermal imaging camera, Tool maker's microscope, metallurgical microscope, etc.



To  
file of External  
Academic Audit.

PROFESSOR & HEAD  
Department of Mechanical Engineering  
ANIL NEERUKONDA INSTITUTE OF TECHNOLOGY & SCIENCES  
Sangivalasa-531162 VISAKHAPATNAM Dist A F

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**3. Comment/ Suggestion/Observation:**

Improvement is necessary in upgrading the experiments to strengthen the fundamental concepts.

**Action taken:**

The department always strives to enhance the quality of learning in laboratories. This is achieved through continuous upgradation of existing laboratories by adding experiments that reflect the current trends and also puts the student on par with the present industrial requirements.

The department has also introduced new laboratories like Applied Mechanics Lab & Computer Aided Modelling Lab. This process of continuous improvement will progress uninhibited.

**4. Comment/ Suggestion/Observation:**

Question paper quality has to be improved.

**Action taken:**

The quality of question papers for internal mid exams is ensured through a review process by a team of members constituted by IQAC.

**5. Comment/ Suggestion/Observation:**

The Student's performance has to be improved

**Action taken:**

Slow learners are identified by the faculty in their respective subjects and remedial classes are arranged for them. Due to Covid pandemic, the department provided the videos of the classes arranged in virtual mode to the students for revision. These videos played a crucial role in improving the learning capabilities of all students.

**6. Comment/ Suggestion/Observation:**

In view of Covid, Online industrial tours to be arranged.

**Action taken:**

Online industrial visits are being arranged with the consent of local industries. MSME Technology centre, Visakhapatnam has recently given its approval for arranging an industrial visit to its centre in virtual mode.

**7. Comment/ Suggestion/Observation:**

Student's survey has to be considered in improvement of curriculum

**Action taken:**

The feedback of students, alumni, faculty & employers are continuously obtained every year for introducing new subjects into the curriculum and updating of syllabus in the already existing subjects.

**8. Comment/ Suggestion/Observation:**

Consultancy & Research projects are necessary

**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:**

CO-PO-PSO attainment process has to be reviewed, in view of the comments of NBA team.

**Action taken:**

The department will shortly constitute a committee to review the CO-PO-PSO attainment procedures which will include the review of CO-PO-PSO mapping matrices of all theory and lab course, calculation procedures and targets.

22.1.22

HOD  
Mech. Engg.

PROFESSOR & HEAD  
Department of Mechanical Engineering  
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Sangivalasa-531 162 VISAKHAPATNAM Dist A P



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(Permanently Affiliated to Andhra University, AICTE, Accredited by NBA Tier-I, NAAC)  
Sangivalasa-531162, BheemunipatnamMandal, Visakhapatnam Dt.  
Phone 08933-225084, 226395

### Department of Mechanical Engineering

#### Format for Academic Audit (to be filled up by Academic Experts) Academic year 2020-21

1. **Name of the Auditor:** Dr. P.S.V Ramana Rao

**Designation:** Registrar & Professor

**Address:** Dept of Mechanical Engineering,

Centurion University of Technology & Management,  
Vizianagaram.

**Contact no:** 9394614546

**Email ID:** drpsvrao@cutmap.ac.in

*P. S. V. Rao*  
18/1/22

2. **Name of the Auditor:** Dr. S V S K Deepak Kumar

**Designation:** Associate Professor

**Address:** Dept of Mechanical Engineering,

Centurion University of Technology & Management,  
Vizianagaram.

**Contact no:** 9000291444

**Email ID:** dr.deepaksahini@gmail.com

*S. V. S. K. Deepak Kumar*  
18/1/22

3. **The days and dates of visit:** 18-01-2022



To  
The file of External  
Academic Audit

14  
19-1-22  
PROFESSOR & HEAD  
Department of Mechanical Engineering  
ANIL NEERUKONDA INSTITUTE OF TECHNOLOGY & SCIENCES  
Sangivalasa-531162 VISAKHAPATNAM Dt. A P

To  
HOD (Mech)

*V. H. N.*  
15/1/22

Copy to Audit file.



## ANIL NEERUKONDA INSTITUTE OF TECHNOLOGY & SCIENCES (A)

### DEPARTMENT OF MECHANICAL ENGINEERING

(Permanently Affiliated to Andhra University, AICTE, Accredited by NBA NAAC with 'A' Grade)

Sangivalasa-531162, BheemunipatnamMandal, Visakhapatnam Dt.

Phone 08933-225084, 226395

#### 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.	Curriculum	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.	Curriculum	113
2.	Academic Facilities	86
3.	Teaching Learning proves	101
4.	Evaluation System	121
5.	Result	65.26
6.	General Academic Activities	80
7.	Feedback and Corrective Action	78
8.	Faculty Performance / Upgradation	77
9.	Attainment of CO's and PO's of all courses	93
10.	Total	814.26

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.   
18/1/22
2.   
18/1/22

### 1. Curriculum

S. No.	Sub-Parameter	Marks Assigned	Marks scored
1.	<b>Curricula content to provide understanding concepts of (with sufficient practical exposure)</b>		
	Mathematics and basic sciences	5	5
	Basic Engineering subjects	5	5
	Management and Humanities	6	4
	Programme Core	30	30
	Elective Subjects	6	6
	Interdisciplinary elective subjects	4	3
	Open Elective/Emerging subjects in curriculum	4	4
	NPTEL courses/MOOCs	4	2
	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	3	
2.	Do the curriculum take care of slow and fast learners learning simultaneously?	10	10
3.	Revision / Upgradation of the curriculum to incorporate appropriate new knowledge systems (based on no. of BoS/ APMC meeting)	15	15
<b>Total</b>		120	113
<b>Additional Comments / feedback / observations/ advice which may or may not be based on above points:</b>  More awareness and focus in the area of Entrepreneurship skills is necessary.			

## 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	7
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	8
14.	Internet and Wi-Fi facility	5	4
15.	Improvement made in infrastructural facilities during last year	5	5
<b>Total</b>		<b>100</b>	<b>86</b>
<p><b>Any additional comments / feedback / observations / advice which may or may not be based on above points:</b></p> <p>Remedial measures are taken in the direction of establishment of Project Lab to improve computational facility among the students.</p>			



### 3. Teaching – Learning Process

Sr. No.	Sub-Parameter	Marks Assigned	Marks scored
1.	<b>Theory Courses</b>		
	<b>Course File (Syllabus sheet, Course material, content beyond syllabus, MID question papers, Answer sheets, Assignments, External QP, Quizes and Activites)</b>		
	% 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	8
	Quality of teaching plan and notes prepared by faculty	10	8
	Quality of Assignments	10	7
	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.	<b>Practical</b>		
	Quality of experiments conducted (Do the experiments designed facilitate the students in generating creative thoughts ?)	10	6
	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	9
4.	Staff development programs for Faculty and / or supporting staff including FDP / STTP etc.	10	9
5.	Actions taken by department to improve performance of academically weaker students	10	9
6.	Efforts taken by department to improve overall performance of students including Workshop / Short term course/Hackathons/ Tech fest outside institute etc.	10	8
	<b>Total</b>	<b>130</b>	<b>101</b>
<b>Any additional comments / feedback / observations/ advice which may or may not be based on above points:</b>  Improvement is necessary in the design of experiments to inculcate creativity in the students.			

#### 4. Examination and Evaluation System

Sr. No.	Sub-Parameter	Marks Assigned	Marks scored
<b>1</b>	<b>Examination Process</b>		
	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
<b>2</b>	<b>Quality of internal question papers</b>		
	Appropriate coverage of syllabus in class test and labelling 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
<b>3</b>	<b>Quality of external question papers</b>		
	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	3
	Language / Clarity / Variety etc in questions (Majority of the questions should not be just like write short note/ explain / discuss etc.	5	3
<b>4</b>	<b>Does the moderation of each question papers completed before paper printing ?</b>	5	5
<b>6</b>	<b>Assessment of Project work / Industrial training/ Internship term work</b>		
	Continuous assessment of project works/seminars through rubrics	5	5
<b>7</b>	<b>Assessment Process of theory external papers</b>		
	Presence of Process for evaluating external papers	5	4
	Model answers and marking scheme	5	5
	Evaluation quality (% of students applying for revaluation and of change in mark cases)	5	4
	Average experience of evaluators	5	4
	Moderation process	5	4
	Revaluation and recounting of answer sheets within mentioned period	5	4

	Does the Complaint Redressal Committee exist to tackle the cases of lapses associated with examinations ?	5	5
	Whether the photocopy of the assessed paper is made available the students, if requested ? Its duration.	5	4
<b>8</b>	<b>Involvement of external faculty member in the examination work as</b>		
	Paper setter	5	5
	Evaluator	5	4
	Examiner for practical / oral examination	5	4
	<b>Total</b>	<b>140</b>	<b>121</b>
<b>Additional comments / feedback / observations/ advice which may or may not be based on above points:</b>			
Question paper quality has to be improved to test higher level of learning in the students.			

### 5. Results

S. No.	Sub-Parameter	Marks Assigned	Marks scored
1	<b>Performance of students in examinations (Without backlogs)</b>	<b>60</b>	<b>36.24</b>
	% of students passing IV year *0.15	$(167/279)*100*0.15$	8.97
	% of students passing III year *0.15	$(162/259)*100*0.15$	9.38
	% of students passing II year *0.15	$(148/266)*100*0.15$	8.34
	% of students passing I year *0.15	$(107/168)*100*0.15$	9.55
2	<b>Overall Performance of students (With backlogs)</b>	<b>40</b>	<b>29.02</b>
	% of students passing IV year *0.1	$(210/279)*100*0.1$	7.52
	% of students passing III year *0.1	$(202/259)*100*0.1$	7.79
	% of students passing II year *0.1	$(186/266)*100*0.1$	6.99
	% of students passing I year *0.1	$(113/168)*100*0.1$	6.72
	<b>Total</b>	100	65.26
<b>Additional comments / feedback/ observations / advice which may or may not be based on above points:</b>  The student's performance needs to be improved. Advised to take remedial measures in this direction.			

### 6. General Academic Activities

S. No.	Sub-Parameter	Marks Assigned	Marks scored
1.	Whether all activities performed as per academic calendar ?	10	8
2.	Whether academic processes are student development centric ?	10	9
3.	% of students actually enroll for co-curriculum activities in or out of the Institute <div style="display: flex; justify-content: space-around; align-items: center;"> <span>&gt;70%</span> <span>10 marks</span> </div> <div style="display: flex; justify-content: space-around; align-items: center;"> <span>30% to 70%</span> <span>linearly distributed</span> </div> <div style="display: flex; justify-content: space-around; align-items: center;"> <span>&lt;30%</span> <span>00 marks.</span> </div>	10	10
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	8
7.	How is the performance of students in Extension of services through NSS / NCC /Unnath Bharath Abhiyan?	10	10
8.	Industrial visits organized by department	10	5
9.	Technical events organized by the department for faculty and students including STTP / Expert lectures / Model or project competition / GD/ etc.	10	10
10.	Entrepreneurship/ Techno idea activities contest in the department	10	7
11.	Performance in competitive examinations like GATE/ CAT/GRE etc	10	5
	<b>Total</b>	<b>100</b>	<b>80</b>
<b>Additional comments / feedback/ observations / advice which may or may not be based on above points:</b>  It is observed that, in view of COVID there are no industrial visits organized for the students, hence it is advised to plan online industrial tours to get awareness among the students.			

### 7. Student's Feedback and Corrective Action

Sr. No.	Sub-Parameter	Marks Assigned	Marks scored
1	<b>Feed back during the semester</b>		
	Frequency of obtaining student's feedback (Meetings of CRCs etc)	20	18
	Corrective action taken at the departmental level	20	18
2	<b>Suggestion box</b>		
	Availability of suggestion box	5	5
	How frequently suggestion box is opened ?(Maximum marks for opening twice in a month )	5	3
	Corrective action taken for suggestions at the departmental level	10	7
3	<b>Exit feed back</b>		
	Attainment of POs for the academic year	10	9
	Corrective Action of attainment of POs	10	8
4	Survey on outcome of the course / individual class using web tools	20	10
	% of total courses for which survey is done * 20		
	<b>Total</b>	<b>100</b>	<b>78</b>
	<b>Additional comments / feedback/ observations / advice which may or may not be based on above points:</b>		
	Remedial measures have been taken in the area of student's survey for the improvement of curriculum. It is also advised to take student's survey on course outcomes.		

### 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	16
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	2
4	Overall performance of department faculty members , based on research paper published in journals, conferences and seminar.	15	10
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	8
8	Performance of faculty, based on consultancy and internal revenue generation (IRG)	10	2
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	4
	<b>Total</b>	<b>110</b>	<b>77</b>
<b>Additional comments / feedback/ observations / advice which may or may not be based on above points:</b> Some improvement is found in the qualification enhancement of the faculty, filing of patent and receiving awards. Improvement is necessary in the area of consultancy and research projects.			

### 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	14
2	Documentation of Justification table for CO-PO articulation table for all courses	15	14
3	Calculation of CO-PO attainment for all courses in the programme	20	19
4	Calculation of POs by indirect attainment ( with reasonable sample size)	20	18
5	Reasons for non-attainment of COs and POs if any	15	14
6	Corrective measures for non-attainment of COs and POs	15	14
<b>Total</b>		<b>100</b>	<b>93</b>
<b>Additional comments / feedback/ observations / advice which may or may not be based on above points:</b>  As per NBA peer committee members advise, CO-PO calculation & targets to be revised.			

*S. Seepale*  
18/1/22

*D. Anup Singh*  
18/1/22