



ANIL NEERUKONDA INSTITUTE OF TECHNOLOGY & SCIENCES
(UGC AUTONOMOUS)

(Affiliated to AU, Approved by AICTE & Accredited by NBA & NAAC with 'A' Grade)
Sangivalasa 531 162, Bheemunipatnam Mandal, Visakhapatnam Dist

DEPARTMENT OF CHEMICAL ENGINEERING

EXTERNAL AUDIT ON THE PERFORMANCE OF THE DEPARTMENT

S. No.	Criteria	Max Marks	Self Marks	Evaluator marks
1	Teaching – Learning Processes	300	275	261
2	Student's Performance	200	101	101
3	Faculty contributions	250	72	72
4	Co-curricular activities	100	77	77
5	Students support systems	85	72	66
6	Continuous improvement	40	32	32
7	Best Practices	25	25	18
	Total	1000	654	627

Availability of ATR and Impact analysis / implementation on comments of previous NBA committee/ IA remarks: (Copy may be provided by the departments)

1. Teaching Learning Processes: (Max – 300)

S.No	Description	Max marks	Marks awarded (Self)	Marks awarded (Evaluator)
1.1	Initiative for improvement of quality in teaching and learning (80)			
1.1.1	Availability of Academic Calendar of the department based on Institute's academic calendar and its effective compliance / implementation and adherence to schedule	5	5	5
1.1.2 (a)	Implementation of pedagogical initiatives such as real life examples, collaborative learning, ICT supported learning, interactive class rooms etc.	10	10	9
1.1.2 (b)	Usage of MOODLE Check apart from Lecture notes availability of quizzes, beyond curriculum contents, students usage, how useful for self learning for 2019-20 and 2018-19	10	10	9
1.1.3	Guidelines to identify weak and bright students(3M); post identification actions taken(3M); impact observed and recorded(4M)	10	10	7 [For bright students not observed]
1.1.4	Class room ambience; efforts to keep students engaged	5	5	5
1.1.5	Quality of laboratory experience with respect to conducting, recording observations(5M); Evaluation process: Usage of Rubrics for assessment(10M) Faculty / Technician explanation in labs (at least 2-3 labs) (5M)	20	20	17 [Upgradation of experiments is required]
1.1.6	Feedback analysis and actions taken (CRC/ Student feedback) (5M); Impact of action recorded(5M): Check action	10	10	10

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	taken exactly matches with the analysis (Randomly 3-4 specific cases)			
1.1.7	Identification of curricular gaps and action taken	10	10	10
1.2	Quality of end semester examination, internal semester question papers, assignments and evaluation (35)			
1.2.1	Process of internal semester question paper setting, scheme of evaluation and its compliance, existence of committee	5	5	5
1.2.2	Question paper validation to ensure desired standard from outcome attainment perspective as well as learning levels perspective (Quality of Q papers) Internal (5) + external (5)	10	8	8
1.2.3	Mapping of questions with the Course outcomes, Blooms taxonomy, indication of above percentage wise weightages for last 3 assessment years.	10	10	6+1=7 [observed this year]
1.2.4	Assignments / case studies / seminarsto promote self-learning,(for coverage of non-domain POs and also higher levels of Blooms taxonomy) survey of contents from multiple sources, assignment evaluation and feedback to the students, mapping with the COs.	10	10	8 Quality of assignments need to be impro
1.3	Quality of student projects (35)			
1.3.1	Guide allocation and Projects identification strategies	5	5	5
1.3.2	Continuous monitoring mechanism and evaluation (5M), Usage of Rubrics for project assessment Methodology (Appropriately documented) to assess individual contribution/understanding of the project as well as collective contribution/understanding {Process to assess individual and team performance}(10M)	15	15	15
1.3.3	Projects classification (application, product, research, review etc.) consideration to factors such as environment, safety, ethics, cost, standards (non –domain factors)and mapping with program outcomes and program specific outcomes. (5M)	5	5	5
1.3.4	Quality of journal where the paper has been published /quality of competition in which award has been won for the projects	10	0	0
1.4	Industry related interaction (25)			
1.4.1	Industry supported laboratories	5	0	0
1.4.2	Industry involvement in the program design and Curriculum.	5	5	5
1.4.3	Industry involvement in partial delivery of any regular courses for students	5	2	2
1.4.4	Impact analysis of industry institute interaction and actions taken thereof	5	5	5
1.4.5	Industrial /internship /summer training of more than two weeks and post training Assessment	5	5	5
1.5	Factors related to Outcome based education (90)			
1.5.1	Explanation of Articulation matrix for COs and POs and also fixing proper attainment levels of PO, PSO and PEO assessment.(Check faculty awareness)	10	10	10
1.5.2	Coverage and quality of all direct and indirect assessment tools for POs and PSOs (Such as COs, projects, placements, higher education etc., for direct assessment and recruiter, alumni, employer, parents etc., for indirect assessment). Reasonable sample size is critical for each tool	10	10	10
1.5.3	Updating the data of CO / PO/PSO assessment in a time	15	15	15

	bound manner and action / measures taken and impact			
1.5.4	Initiatives for faculty and student awareness of OBE (5M) and verification of faculty and student awareness i.e. impact analysis (10M) Physically check	15	15	14
1.5.5	CO attainment tools based on internal exam evaluation + external examination Procedures followed {Based on assessment on performance of students question wise in both cases}	20	20	20
1.5.6.	Action taken on non attainment of POs / Cos	20	15	15
1.6	Laboratory facilities (35)			
1.6.1	Maintenance and overall ambience (to check physically whether the equipment is working)	10	10	10
1.6.2	Safety initiatives in laboratories	10	10	10
1.6.3	Facilities (additional equipment) created for improving the quality of learning	15	15	15

2. Student Performance: (Max-200)

S.No	Description	Max marks	Marks awarded (Self)	Marks awarded (Evaluator)
2.1	Success rate (90)			
2.1.1	a) Success rate of students who cleared programme without backlogs in any year of study including lateral entry = $20 \times (\text{Students graduated} / \text{Students admitted})$	20	6.38 ✓	6.38
	b) Improvement in success rate from previous years (1M for each percent increase)	5	5 ✓	5
2.1.2	a) Success rate in any year of study including lateral entry = $15 \times (\text{Students graduated} / \text{Students admitted})$	15	14.47 ✓	14.47
	b) Improvement in success rate from previous years (1M for each percent increase)	5	5 ✓	5
2.1.3	Academic Performance in Third Year Academic Performance = $1.5 * \text{API}$ (Academic Performance Index) API = $(3^{\text{rd}} \text{Year Grade Point Average of all successful Students on a 10 point scale} \times \text{number of successful students}) / \text{number of students appeared in the examination}$	15	9.9 ✓	9.9
2.1.4	Academic Performance in Second Year {Same as above formula in 2.1.3}	15	8.8 ✓	8.8
2.1.5	Academic Performance in First Year { Same as above formula in 2.1.3}	15	9.3 ✓	9.3
2.2	Student enrollment ($\geq 90\%$ - 15M; $\geq 80\%$ - 10M; $\geq 70\%$ - 5M; otherwise - 0)	15	0 ✓	0
2.3	Placement, Higher Studies and Entrepreneurship: $50 \times (\text{students placed} + \text{admitted to higher studies} + 3 \times \text{entrepreneurs}) / (\text{Total students})$	50	29.8 ✓	29.8
2.4	Achievements in curricular, co-curricular and extra-curricular activities (45)			
	Paper, model presentation etc in International Level (IL), National Level (NL), State Level (SL) Marks = $4.5 \times (10 \times \text{SPIL} + 5 \times \text{SPNL} + 2.5 \times \text{SPSL}) / \text{TNS}$ SPIL = students participated in International Level	45	12.4 ✓	12.4

SPNL=students participated in national Level			
SPSL=students participated in state Level			
TNS= Total number of students in 2 nd , 3 rd and 4 th year			

*National level (Paper, model presentation etc) conducted in-house is treated as State level

3 Faculty contributions:(Max-250)

S.No	Description	Max marks	Marks awarded (Self)	Marks awarded (Evaluator)
3.1	Research Guidance (20)			
3.1.1	M.Phil / M.Tech./ (1M / candidate)	20	0 ✓	0
3.1.2	Ph.D. (10M/ candidate)		10 ✓	10
3.2	Research Projects (40)			
3.2.1	Major (More than 10 lakhs) 15M/ project	25	0 ✓	0
3.2.2	Minor (5M/ project)		0 ✓	0
3.2.3	Patents (5M/ patent)		10	0 ✓
3.3	Consultancy: More than 2 Lakhs : 10 marks < 2 lakhs: 5 marks	10	0 ✓	0
3.4	Publications(75)			
3.4.1	Books, book chapters (5M / each chapter)	10	0 ✓	0
3.4.2	Publication in journals: Marks awarded=40 X P/F F : number of faculty, P=0.5P1+0.5P2; Where P1 = {PW, PS} P2=no. of publications reported in Indian citation index, UGC list of journal, PW : No. of publications reported in Web of science, SCI PS : No. of publications reported in Scopus	40	11.7 ✓	11.7
3.4.3	Quality publications: $QP = 15 \times p(CC/P) + 5 \times p(NCI) + 5 \times p(TOP25P)$ ➤ Here CC is Total Citation Count over previous 3 years. ➤ P is total number of publications over this period as computed for PU. CC, NCI and TOP25P computed as follows : ➤ $CC = 0.45CCW + 0.45CCS + 0.1CCI$ ➤ $NCI = 0.5 NCIW + 0.5 NCIS$ ➤ $TOP25P = 0.5 TOP25PW + 0.5 TOP25PS$ ➤ NCI: Field normalized citation index averaged over the previous 3 years. ➤ TOP25P: Number of citations in top 25 percentile averaged over the previous 3 years.	25	7.5 ✓	7.5
3.5	Papers presented in seminars / conferences(30)			
3.5.1	Marks = 30 x (1.5 x NFPI + 0.5xNFPN)/TNF NFPI=number of faculty presented in international seminars/conferences NFPN=number of faculty presented in national seminars/conferences Max: 30M	30	0 ✓	0

3.6	Seminars / Conferences / Workshops / Symposia wherein served as Resource person(20)			
3.6.1	Keynote Speaker / Chairman / Co-Chairman / Distinguished Guest / Key Speaker / Lead Discussant International: 4M/session (max 20) ; National: 2M/session (max 10)	20	2 ✓	2
3.7	Membership in editorial boards and number of papers reviewed (2.5M / paper)	5	0 ✓	0
3.8	Membership / executive positions in professional bodies and their related activities(2.5M / activity)	5	0 ✓	0 [Executive positions]
3.9	Development activities (product development, instructional materials, working models, charts, monogram etc.) 2.5M/activity	5	2.5 ✓	2.5
3.10	Guest lectures delivered by faculty Industry / research institutes / universities 2.5M / lecture	5	5 ✓	5
3.11	Awards and honors(only academic bodies and Govt. Organizations) 2.5M/award	5	0 ✓	0
3.12	Faculty Qualification FQ = 1.5x [(10X + 6Y)/F] where X is the no. of regular faculty with Ph.D., Y is the no. of regular faculty with M.Tech., F is no. of regular faculty required to comply 1:25 Faculty Student ratio including LE.	15	13.67 ✓	13.67
3.13	Faculty participation in Faculty development/training activities/STTPs A Faculty scores maximum five points for participation <ul style="list-style-type: none"> • Participation in 2 to 5 days FDP: 3 M • Participation >5 days FDP: 5M • Assessment = 3 × Sum of points / 0.5RF where RF is required faculty as per 1:25 ratio 	20	20 ✓	20

4. Co-curricular activities:(Max-100)

S.No	Description	Max marks	Marks awarded (Self)	Marks awarded (Evaluator)
4.1	Expert faculty / industrial heads visits From Foreign universities / IITs, NITs /research organizations / companies (5M/ visit) From universities (4M / visit)	15	15 ✓	15
4.2	International / national Events organized 5 / event	15	10 ✓	10
4.3	Department Journal / News letter / Magazine / Website	5	5 ✓	5
4.4	Certificate programmes / short term programmes organized 10M/programme	15	10 ✓	10
4.5	Alumni association meetings	5	0 ✓	0
4.6	Contributions from Alumni (Technical collaboration / employment providers / aid for infrastructure improvement / scholarships)	5	0 ✓	0
4.7	Extension activities (participation of faculty & students in community services)	10	10 ✓	10
4.8	MoU's / Joint programmes signed (5M / MoU)	5	2 ✓	2

4.9	<i>Adjunct faculty (Minimum 30 Hrs engagement /semester) (10M / faculty)</i>	10	10 ✓	10
4.10	<i>Student activity clubs and their related activities (5M / activity)</i>	15	15 ✓	15

5. *Student support systems: (Max-85)*

S.No	Description	Max marks	Marks awarded (Self)	Marks awarded (Evaluator)
5.1	Mentoring system: Efficacy of the system (5M), impact analysis (10M)	15	15 ✓	15
5.2	Feedback analysis and reward /corrective measures taken, if any and impact analysis (12)			
5.2.1	Feedback on facilities (1M) and corrective measures (2M)	3	3 ✓	3
5.2.2	Feedback from recruiters (1M) and corrective measures (2M)	3	3	2 [Corrective measure missing]
5.2.3	Feedback from employers (1M) and corrective measures (2M)	3	3	2 - do -
5.2.4	Feedback from Alumni (1M) and corrective measures (2M)	3	3	2 - do -
5.3	Self learning (15)			
5.3.1	Scope for self-learning	5	5	5
5.3.2	The facilities provided such as materials for learning beyond syllabus, Webinars, Podcast, MOOCs etc. and demonstrate its effective utilization	10	10	9
5.4	Career Guidance, Training, Placement (20)			
5.4.1	Availability of career guidance facilities	5	5	5
5.4.2	Counseling for higher studies (GATE/GRE, GMAT, etc.)	3	3	2
5.4.3	Pre-placement training (6M)	6	6	6
5.4.4	Placement process and support (6M)	6	6	6
5.5	Entrepreneurship Cell(10)			
5.5.1	Entrepreneurship initiatives	6	2	2
5.5.2	Data on students benefitted	4	0	0
5.6	Grievance redressal system for the students and action taken	8	8	7
5.7	New facilities created / development in the departments (common rooms, study rooms, project rooms, department library etc.)	5	0	0

6. *Continuous Improvement (Max-40)*

S.No	Description	Max marks	Marks awarded (Self)	Marks awarded (Evaluator)
6.1	PO And PSO attainment {2M For Each 1% Increase}	8	8	8
6.2	Pass percentage { 2M For Each 1% Increase}	8	8	8
6.3	Intake: (Improvement in mean rank in open category-5M) + (>95% seats filled -5M; 90-95% seats filled - 3M,	8	0	0

	and below 90% -0M)			
6.4	Student Placements, Higher Studies & Entrepreneurship {1M For Each 1% Increase}	8	8	8
6.5	Faculty Publications {1M For Each 1% Increase}	8	8	8

7. *Innovative / Best practices and their impact (Max-25)*

S. No	Description	Max marks	Marks awarded (Self)	Marks awarded (Evaluator)
7.1	Describe the best practices the department claims to have a niche for itself in the areas such as Teaching learning process, community engagement, co-curricular activities, evaluation, feedback system, Student participation in other activities, Alumni activities etc., (which makes the dept unique)	10	10	8
7.2	The impact of such activities	15	15	10

[Need more innovative practises]

M. V. V. Ch. Lakshmi
Signature of the Evaluator
09/07/2019

