SELF ASSESSMENT REPORT (SAR)
TIER - II UG Engineering Programs
First Time Accreditation

Dr. J.N. Jha

Principal

MIT, Muzaffarpur

Criteria No.	Criteria	Weightage /Marks
Programme level Criteria		
1.	Vision, Mission and Program Educational Objectives	60
2.	Program Curriculum and Teaching – Learning Processes	120
3.	Course Outcomes and Program Outcomes	120
4.	Students' Performance	150
5.	Faculty Information and Contributions	200
6.	Facilities and Technical Support	80
7.	Continuous Improvement	50
Institute Level Criteria		
8.	First Year Academics	50
9.	Student Support Systems	50
10.	Governance, Institutional Support and Financial Resources	120

CRITERION 4	Students' Performance	150

Abbreviations used

➢ **CAY – Current Academic Year**

➢ **CAYm1- Current Academic Year minus 1= Current Assessment Year**

➢ **CAYm2 - Current Academic Year minus 2 = Current Assessment Year minus 1**

➢ **LYG – Last Year Graduate**

➢ **LYGm1 – Last Year Graduate minus 1**

➢ **LYGm2 – Last Year Graduate minus 2**

4.1. <u>Enrolment Ratio</u> (20)

Enrolment Ratio = Total students admitted in Ist yr /Sanctioned intake of program

Avg. Student enrollment at First Year Level during prev. 3 acad. yrs incl CAY)	Marks
>= 90% students	20
>= 80% students	18
>= 70% students	16
>= 60% students	14
>= 50% students	12/0
Otherwise	0

Admission intake in the programme

Item	CAY	CAY1	CAY2	CAY3
Sanctioned intake strength in the programme (N)	120	120	120	120
Total number of admitted students in first year *minus* number of students migrated to other programmes at the end of 1st year ($N1$)	120	120	120	120
Number of admitted students in 2nd year in the same batch via lateral entry ($N2$)	-	24	23	17
Total number of admitted students in the Programme ($N1 + N2$)	120	144	143	137

4.2. Success Rate in stipulated period of the program (40)/(20)

4.2.1. Success rate without backlogs in any semester/year of study (25)/(15)

SI = (Number of students graduated from program without backlog)/ (Number of students admitted in first year of that batch and 2nd year via lateral entry/separate Div)

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

Success rate without backlogs in any year of study = 25(15) × Average SI

Success Rate = 25 × mean of success index (SI) for past three batches

Year of entry (reverse chronological order)	Number of students admitted in 1st year + admitted via lateral entry in 2nd year (N1+N2)	No. of students who successfully completed (Zero backlog)			
		1st year	2nd year	3rd year	4th year
CAY	120				
CAYm1	144	80			
CAYm2	143	53	84		
CAYm3	137	80	57	102	
CAYm4 (LYG)	144	44	81	92	119
CAYm5(LYGm1)	108	39	29	71	94
CAYm6(LYGm2)	105	57	31	16	85

Success Index (SI)=
No. of students graduated in stipulated Period/
No. of students admitted in 1st year and 2nd year
Success Rate = 25 × Average SI= 25 ×0.84= 21

Item	LYG (CAYm4)	LYGm1 (CAYm5)	LYGm2 (CAYm6)
Number of students admitted in the corresponding First Year + admitted via lateral entry in 2nd year	**144**	**108**	**105**
Number of students who have graduated in the stipulated period	**119**	**94**	**85**
Success index (SI)	**0.83**	**0.87**	**0.81**

4.2.2. <u>Success rate</u> with Backlog in <u>stipulated period</u> (15)/(5)

SI= (No. of students graduated from program in stipulated period of course duration)/ (No. of students admitted in first year of that batch + 2nd year via lateral entry)

Avg SI = mean of Success Index (SI) for past 3 batches

Success rate = 15(5) × Average SI

Note: If 100% students clear without any backlog, then total marks are <u>40(20)</u> as both 4.2.1 & 4.2.2 will be applicable simultaneously

Success Rate with backlog in stipulated period
Success Rate = 15 × Average SI= 15 ×0.84= 12.6

Item	LYG (CAYm4)	LYGm1 (CAYm5)	LYGm2 (CAYm6)
Number of students admitted in the corresponding First Year + admitted via lateral entry in 2nd year	144	108	105
Number of students who have graduated with backlog in the stipulated period	119	94	85
Success index (SI)	0.83	0.87	0.81

4.3. <u>Academic Performance in 3rd Year</u> (15)/(0)

Academic Performance = 1.5 * Average API (Academic Performance Index)

$$API = \{Mean\ of\ 3^{rd}\ Year\ Grade\ Point\ Avg\ of\ all\ successful\ Students\ on\ a\ 10\ point\ scale$$

<u>*OR*</u>

Mean of % of marks of all successful students in 3rd Year/10} x

(__<u>no. of successful students</u>___)

(no. of students appeared in exam)

Successful students: those permitted to proceed to Final year

Academic Performance of 3rd year= 1.5 ×Av. API

Item	LYG (CAYm4)	LYGm1 (CAYm5)	LYGm2 (CAYm6)
Approximating the API by the following mid-point analysis (API by Mid-CGPA)			
9 < Number of students with CGPA < 10.0	0	0	0
8 < Number of students with CGPA < 9.0	11	4	0
7<=8	47	32	21
6<=7	61	56	64
5<=6	0	2	0
Mean of CGPA or Mean Percentage of students (X)	7.1	6.9	6,7
Total no. of successful students (Y)	119	94	85
Total no. of students appeared in the examination (Z)	144	108	105
API = x* (Y/Z)	5.86	6.05	5.42
Average API = (AP1 + AP2 + AP3)/3	5.77		
Academic Performance	1.5× 5.77=8.65		

4.4. <u>Academic Performance in 2nd Yr</u> (15)/(10)

Academic Performance Level = 1.5 * Average API (Academic Performance Index)

API = {Mean of 2nd Year Grade Point Avg of all successful Students on a 10 point scale

<u>OR</u>

Mean of % of marks of all successful students in Second Year/10}   x

(no. of successful students   )
(no. of students appeared in exam)

Successful students: *permitted to proceed to 3rd year*

Academic Performance of 2nd year= 1.5 ×Av. API

Item	LYG (CAYm4)	LYGm1 (CAYm5)	LYGm2 (CAYm6)
Approximating the API by the following mid-point analysis (API by Mid-CGPA)			
9 < Number of students with CGPA < 10.0	0	0	0
8 < Number of students with CGPA < 9.0	11	4	0
7<=8	47	32	21
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5<=6	0	2	0
Mean of CGPA or Mean Percentage of students (X)	7.1	6.9	6,7
Total no. of successful students (Y)	119	94	85
Total no. of students appeared in the examination (Z)	144	108	105
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Average API = (AP1 + AP2 + AP3)/3	5.77		
Academic Performance	1.5× 5.77=8.65		

4.5. <u>Placement, Higher Studies, Entrepreneurship</u> (40)/(30)

Assessment Points = 40 or 30 × average placement

Item	CAYm1	CAYm2	CAYm3
Total No. of Final Yr Students (N)			
Students placed in companies/Govt. Sector (x)			
Students admitted to **higher studies** with valid qualifying scores (GATE/ equivalent State/National Level Tests, GRE, GMAT etc.) (y)			
Students turned **entrepreneur** in engg/tech (z)			
x + y + z =			
Placement Index : (x + y + z)/N	P1	P2	P3
Average placement=(P1+P2+P3)/3			

Placement, Higher Studies and Entrepreneurship

Item	LYG (CAYm4)	LYGm1 (CAYm5)	LYGm2 (CAYm6)
Total No. of Final Year Students (N)	144	108	105
No. of students placed in companies or Govt. Sector (x)	20	17	42
No. of students admitted to higher studies with valid qualifying scores (GATE or equivalent State or National Level Tests, GRE, GMAT etc.) (y)	21	30	13
No. of students turned entrepreneur in engg./ tech. (z)	24	25	28
x + y + z =	65	72	83
Placement Index : (x + y + z)/N	0.45	0.67	0.79
Average placement= (P1 + P2 + P3)/3	0.64		
Assessment Points = 40 × average placement	25.47		

Placement data format

Programs name with Assessment Year				
S. N.	Name of the student Placed	Enrollment Number	Name of the employer	Appointment Letter reference No. with date

4.6. **Professional Activities** (20)

4.6.1. Professional societies/ chapters organizing engineering events (5)

- **Relevant details**

-**Availability/activities** of Professional Society/ Chapters (3)
- No./ **Quality of Engg. events** organized at Institute (2)

4.6.2. **Publication of tech magazines, newsletters, etc.** (5)

• Department shall list publications with names of editors/ publishers, etc
- **Quality/relevance of contents**/print material (3)
- **Participation of students** from the program (2)

4.6.3 <u>Participation in inter-institute events by students of program</u> (10)

- **Provide a table indicating publications which received awards in events / conferences organized by other institutes**

Within the State (2)
Outside the State (3)
Prized/Awards received (5)

Professional societies/chapters and organizing engineering events

Year of Entry	Event Name	Student Details		Organised by
		Name	Position	
CAYm1	Structure Master	Suraj Kakkar Ram Kakkar Akshay Kaushal	2nd	ISTE, MIT
CAYm2	Project & Model Display	Akshay Kaushal	1st	IE Student Chapter, MIT
CAYm3	Truss-O-Build	Suraj Kakkar Ram Kakkar	1st	ACES, MIT

Publication of technical magazines, newsletters, etc.

Year	Title of the Article	Student detail	Editor	Magazine/ Newsletter
CAY	Recycled Concrete aggregate: A Solid Wealth	Akshay kaushal, Danish Malhotra, Jaspreet Singh, Leezu Goyal, Vivek Makkar	JN Jha, Harvinder Singh, Preetinder Kaur	Proceedings of GEPSID-2014-national conference, October 11-12, 2014, Ludhiana
CAYm1	Properties of self compacting concrete mixed with fly ash	Abhinandan Singh	K.Prasad	College Magazine
CAYm2	Funny Definitions	Prabhjot SinghDindsa	Balwinder Singh	College News Letter

Participation in the Inter Institute events by the students of the Program of the study

Year of Entry	Event Name	Student Details		Organised by
		Name	Position	
CAYm1	Structure Master	Suraj Kakkar Ram Kakkar Akshay Kaushal	2nd	IITISM Dhanbad
CAYm2	Project & Model Display	Akshay Kaushal	1st	IITPatna
CAYm3	Truss-O-Build	Suraj Kakkar Ram Kakkar	1st	NIT Patna

CRITERION 5	**Faculty Information and Contributions**	**200**

Name of Faculty	QUALIFICATION			Association with Institution	Designation	Date of Joining institution	Department	Specialization	Academic Research			Sponsored Research (Funded Research)	Consultancy & Product Development
	Degree (highest degree)	University	Year of Graduation						Research Paper Publications	Ph.D. Guidance	Faculty Receiving Ph.D. during Assessment Yrs		
Cumulative information for dept faculty for CAY, CAYm1 & CAYm2													

5.1. **Student-Faculty Ratio (SFR)** (20)

(*CALCULATED AT DEPT LEVEL CONSIDERING ALL UG/PG PROGRAMS*)

No. of UG Programs in the Department (n): _____

No. of PG Programs in the Department (m): _____

No. of Students in UG 2nd Year= **u1**

No. of Students in UG 3rd Year= **u2**

No. of Students in UG 4th Year= **u3**

Except UG 1st yr

No. of Students in PG 1st Year= **p1**

No. of Students in PG 2nd Year= **p2**

No. of Students =Sanctioned Intake+ Actual admitted lat. entry

S=TOTAL STUDENTS IN DEPT = u1+..+un+p1+..pn

F = TOTAL FACULTY IN DEPT (excl first year faculty)

STUDENT FACULTY RATIO (SFR) = S / F

Regular vs Contract Faculty

Regular/ full time faculty >= 75%

Contractual/Adjunct Faculty/Resource persons from industry as per AICTE norms and standards <= 25%

Contractual faculty considered for assessment only if:

- **drawing salary as per concerned State Govt.** for contractual faculty in respective cadre

- **taught over consecutive 4 semesters**

Information about the regular and contractual faculty

Year	Total number of regular faculty in the department	Total number of contractual faculty in the department
CAY		
CAYm1		
CAYm2		

Marks: Student Faculty Ratio (SFR)

SFR	Marks
< = 15	20
< = 17	18
< = 19	16
< = 21	14
< = 23	12
< = 25	10
> 25.0	0

Marks: Student Faculty Ratio (SFR)

Year	CAY	CAYm1	CAYm2
No. of students in the 2nd year of the Program (u1)	144	145	146
No. of students in the 3rd year of the Program (u2)	145	144	146
No. of students in the 4th year of the Program (u3)	73	72	54
Total No. of students in the department (S) = u1+u2+u3	362	363	344
Total No. of faculty in the department (F)	19	18	19
Student Faculty Ratio (SFR) = S/F	19.05	20.16	18.10
Average SFR = (SFR1+SFR2+SFR3)/3	19.10		
Assessment	16		

5.2. <u>Faculty Cadre Proportion</u> (25)/(20)

Reference Faculty cadre proportion is <u>1(F1):2(F2):6(F3)</u>

F1: No. of Prof <u>REQUIRED</u> = 1/9 x No. of Faculty req <u>to comply with 15:1 SFR</u> based on no. of students (S) as per 5.1

F2: No. of Assoc. Prof <u>REQUIRED</u> = 2/9 x No. of Faculty req <u>to comply with 15:1 SFR</u> based on no. of students (S) as per 5.1

F3: No. of Asst. Prof REQUIRED = 6/9 x No. of Faculty req <u>to comply with 15:1 SFR</u> based on no. of students (S) as per 5.1

Year	Professors		Associate Professors		Assistant Professors	
	Required F1	Available F1	Required F2	Available F2	Required F3	Available F3
CAY						
CAYm1						
CAYm2						
Average Numbers	RF1=	AF1=	RF2=	AF2=	RF3=	AF3=

Cadre Proportion Marks =

$$\left[\left[\frac{AF1}{RF1}\right] + \left[\frac{AF2 \times 0.6}{RF2}\right] + \left[\frac{AF3 \times 0.4}{RF3}\right]\right] \times 12.5$$

or (10)

☐ **If AF1 = AF2= 0 then zero marks**

☐ **Maximum marks limited to 25 (20)**

Example: Intake = 180; Req no. of Faculty= 12;
RF1 = 1, RF2 = 2 and RF3 = 9

Case 1: AF1/RF1= 1; AF2/RF2 = 1; AF3/RF3 = 1;
Cadre proportion marks = (1+0.6+0.4) x12.5 = 25

Case 2: AF1/RF1= 1; AF2/RF2 = 3/2; AF3/RF3 = 1;
Cadre proportion marks = (1+0.9+0.4) x12.5 = 28.75 (=25)

Case 3: AF1/RF1=0; AF2/RF2=1; AF3/RF3=18/9;
Cadre proportion marks = (0+0.6+0.8) x12.5 =17.5

5.3. <u>Faculty Qualification</u> (25)/(20)

FQ = $2.5 \times [(10X + 6Y)/F)]$

Where:

- X is no. of **regular faculty with Ph.D.**
- Y is no. of **regular faculty with M.Tech.**
- F is no. of **regular faculty required to comply 1:20 FSR**

(Avg of CAY to CAYm2)

(no. of faculty and no. of students required are to be calculated as per 5.1)

Faculty qualification

Years	X	Y	F	FQ=2.5 x [(10X +4Y)/F)]
CAY	3	12	19	10.26
CAYm1	4	11	18	11.67
CAYm2	5	10	19	11.84
Average Assessment				11.26

Faculty Retention (25) :
No. of Regular Faculty in CAYm2:   CAYm1:   CAY

Item (% of faculty retained during the period of assessment keeping CAYm3 as base year)	Marks
>=90% of required Faculty members retained during the period of assessment keeping CAYm3 as base year)	25
>=75% of required Faculty members retained during the period of assessment keeping CAYm3 as base year)	20
>=60% of required Faculty members retained during the period of assessment keeping CAYm3 as base year)	15
>=50% of required Faculty members retained during the period of assessment keeping CAYm3 as base year)	10
<50% of required Faculty members retained during the period of assessment keeping CAYm3 as base year)	0

5.5. Innovations by Faculty in Teaching & Learning (20)/(10)

INNOVATIONS by Faculty **in teaching and learning** contributing to improvement of student learning may include but not limited to-

- **Use of ICT**
- **Instruction delivery**
- **Instructional methods**
- **Assessment /   Evaluation**
- **Inclusive Class Room leading to effective, efficient, and engaging instruction**

Any contributions to teaching and learning should satisfy the following criteria:

☐ **Work must be available on Institute website (4)/(2)**

☐ **Work must be available for peer review/ critique (4)/(2)**

☐ **Work must be reproducible for further development by other scholars (2)/(2)**

☐ **Statement of clear goals, use of appropriate methods, significance of results, effective presentation (10)/(4)**

Dept/inst. may set up appropriate processes for making the contributions available to the public, getting them reviewed and for rewarding

5.5. <u>Faculty competencies in correlation to Program Specific Criteria</u> (0)/(10)

Correlate program specific criteria to competencies of faculty with respect to:

- Specialization
- Research publications
- Course developments
- Other relevant points

Faculty competency Correlation to Program Specific Criteria

Faculty	Course Taught	Specialization	Publication	Course development	Consul-tancy	Special Class for Comp. Exam
A	ABC	PQR	30	Member BOS	Struc. Design.	GATE

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

- **Faculty scores max five points for participation**
- **Participation in 2 to 5 days FDP: 3 Points**
- **Participation >5 days FDP: 5 points**

Name of Faculty	Maximum 5 per Faculty		
	CAY	CAYm1	CAYm2
	...	...	...
	...	...	...
Sum	...	...	...
RF = No. of Faculty required to comply with 20:1 SFR as per 5.1			
Assessment = 3 × (Sum/0.5RF) (Marks limited to 15)			
Avg assessment over 3 yrs (Marks limited to 15) =			

Faculty as participants in Faculty training /STTPs

Faculty Name	Max. 5/Faculty		
	CAYm 1	CAYm 2	CAYm 3
A1	5	5	5
A2	5	5	5
..	5	5	5
An	5	5	5
Sum	65	67	67
RF= Number of Faculty required to comply with 20:1 Student-Faculty ratio as per 5.1	18	19	19
Assessment = 3 × (Sum/0.5RF) (Marks limited to 15)	21.67 (15)	21.16 (15)	21.16 (15)
Average assessment over three years (Marks limited to 15) =	15		

5.7. <u>Research and Development</u> (30)

5.7.1. <u>Academic Research</u> (10)

Includes research paper publications, Ph.D. guidance & faculty receiving Ph.D. during assessment period

- **No. of quality publications** in refereed /SCI Journals, citations, Books/ Book Chapters etc.** (6)

- **Ph.D. guided /Ph.D. awarded** during assessment period while working in institute** (4)

5.7.2. <u>SPONSORED RESEARCH</u> (5)

Funded research from outside-
Cumulative during last 3 years

Tier II	
Amount (in lacs)	**Marks**
> 20	5
16-20	4
12-16	3
8-12	2
4-8	1
<4	0

Documentary Evidence

Year- CAYm1						
Faculty Name	**Funding Agency**	**Amount & Duration**	**Project Type**	**Project Name**	**Status**	**Outcome**
ABC	AICTE, N.Delhi	10 lakh, 2014-2016	RPS	Stability of Reinforced Fly ash Slope	Completed	Ph.D.-1 M.Tech.-3 SCI Journal -3 Other Journal-02 Int. Conf.-3 Nation al Conf. -3 Research Award-1 Patent-1

5.7.3. Development activities (10)

Year	Product Development	Research laboratories	Instructional materials	Working models/ charts/monog rams etc.
CAYm1	03	04	05	02
CAYm2	05	03	02	07
CAYm3	03	04	04	08

5.7.4. <u>CONSULTANCY (FROM INDUSTRY)</u> (5) Cumulative during last 3 years

Tier II	
Amount (in lacs)	**Marks**
> 10	5
8-10	4
6-8	3
4-6	2
2-4	1
<2	0

Consultancy (Industry)

Year- CAYm1					
Faculty Name	**Project Title**	**Funding Agency**	**Amount**	**Duration (F. Year)**	**Status & Outcome**
A	CBR Value of soil	PWD (B&R)	2.0 lac	2016-17	Completed, Report Submitted
Year- CAYm2					
Faculty Name	**Project Title**	**Funding Agency**	**Amount**	**Duration (F. Year)**	
A	CBR Value of soil	PWD (B&R)	2.0 lac	2016-17	
Year- CAYm3					
Faculty Name	**Project Title**	**Funding Agency**	**Amount**	**Duration (F. Year)**	
A	CBR Value of soil	PWD (B&R)	2.0 lac	2016-17	

5.8. <u>**Faculty Performance Appraisal and Development System (FPADS)**</u> **(30)**

The assessment is based on:

- **A well-defined system for faculty appraisal for all assessment years (10)**

➢ <u>Notified</u> performance appraisal and development system;

➢ Appraisal <u>Parameters</u>;

➢ <u>Awareness</u>

- **Its implementation & effectiveness (20)**

➢ Implementation,

➢ Transparency and

➢ Effectiveness

5.9. <u>Visiting/Adjunct/Emeritus Faculty</u> (10)

Adjunct faculty includes Industry experts.

Participation & contributions in teaching & learning and/or research by visiting /adjunct/ Emeritus faculty etc.

- Provision of inviting visiting/adjunct /Emeritus faculty (1)
- Minimum 50 hours per year interaction with adjunct faculty from industry/retired professors etc. (9)

Minimum 50 hours interaction = 3 marks for that year; 3 marks x 3 years = 9 marks

CRITERION 6	Facilities and Technical Support	80

6.1. Adequate and well equipped labs & technical manpower (30)

A. Adequate well-equipped labs to run all program-specific curriculum **(20)**

B. Availability of qualified & adequate technical support staff **(10)**

SN	Name of Lab	No. of Students per setup (Batch size)	Name of import ant Eqpt	Weekly utilization status (all courses)	Technical Manpower		
					Name of technical staff	Desig natio n	Qualific -ation

6.2. Additional facilities created for improving the quality of learning experience in labs (25)/ (0)

A. Availability & relevance of additional facilities **(10)**

B. Facilities utilization and effectiveness **(10)**

C. Relevance to POs and PSOs **(5)**

S N	Facility Name	Details	Reason(s) for creating facility	Utiliza-tion	Areas where enhanced learning expected	Relevance to POs/PSOs

6.3. Labs: Maintenance & overall ambiance (10)

6.4. Project laboratory (Facilities & Utilization) (5)

6.5. Safety measures in laboratories (10)

S.N.	Name of Laboratory	Safety Measures

Acknowledgement

All the known or unknown sources used during making the presentation are duly acknowledged, without the use of their data/information, the presentation would not have been so informative.