VELAMMAL COLLEGE OF ENGINEERING &TECHNOLOGY

MADURAI TO RAMESHWARAM HIGH ROAD, VIRAGANOOR,
MADURAI-625009

ACCREDITATION– FIRST CYCLE

SELF STUDY REPORT

Submitted to

NATIONAL ASSESSMENT AND ACCREDITATION COUNCIL

OCTOBER 2015

VELAMMAL COLLEGE OF ENGINEERING & TECHNOLOGY
MADURAI
NAAC ACCREDITATION
FIRST CYCLE 2010 – 2015

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4. **Dr. R. NARMADHA BANU – PROF – DEPT. OF EEE**

CRITERION V – STUDENT SUPPORT AND PROGRESSION

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CRITERION VII

10. **Mr. P. SURESH BABU – DEPT. OF IT**

TECHNICAL SUPPORT

Mr. NAGA.MUTHU PALANIAPPAN - DEPT OF IT

CONTENTS

PREFACE

Velammal College of Engineering & Technology (VCET) was established by the Velammal Educational Trust in the year **2007** at Madurai in Tamilnadu. It is a self – financing non – minority institution, approved by All India Council for Technical Education (AICTE), New Delhi and affiliated to Anna University, Chennai. The college is located at a distance of 5km down – town Madurai, at Viraganoor, on Madurai – Rameswaram High Road.

VCET is one of the illustrious Institutions established by **Shri M.V.Muthuramalingam, Chairman,** Velammal Educational Trust. Driven by the dictumthat acivilization should be measured not only in terms of its material wealth but also in terms of its progress in education and the value system that it develops, our engineer – turned - educationist –took a small step in 1986 in this direction , which has, now turned out to be a quantum leap, comprising of 28 Educational institutions including one Medical College, three Engineering colleges and 24 schools under the umbrella "Velammal Educational Trust"(VET).

Velammal College of Engineering &Technology, has an ambitious vision **-"to emerge and sustain as a Centre of Excellence for Technical and Managerial Education upholding Social Values".**

The Mission statementsof the college are

Our aspirants are

- Imparted with comprehensive, innovative and value - based education.
- Exposed to technical, managerial and soft skill resources with emphasis on research and professionalism.
- Inculcated with the need for a disciplined, happy, married and peaceful life

The Mission statements encompass all the life skills that should be acquired by a human being for a holistic living in this world.

The college can almost be called as a prodigy, since with only eight years of youthful existence has come on par and beyond other institutions of much longer standing and has built a reputation for itself in the south Tamil Nadu.

The governance of the college is managed by a Governing Council ably led by the Chairman Shri M.V.Muthuramalingam and assisted by Shri M.V.Velmurugan, C.E.O, Shri M.V.Velmohan, Correspondent and Shri M.V.Sasikumar, Director. The administrative head is the Principal Dr.N.Suresh Kumar, M.E., Ph.D.

The college has, at present, student strength of 2458 with 170 teaching faculty (with 41 are Doctorates and 42 Pursuing Ph.D.) and 65 non- teaching faculty.

The courses offered are

S. No	UnderGraduateand Post Graduate Courses	Intake	Year of introduction
1.	B.E(Computer Science & Engineering)	120	2007
2.	B.E(Electronics and Communication Engineering)	120	2007
3.	B.E(Electrical and Electronics Engineering)	120	2007
4.	B.Tech(Information Technology)	60	2007
5.	B.E(Mechanical Engineering)	120	2008
6.	B.E(Civil Engineering)	60	2011
7.	M.E(Communication Systems)	18	2011

8.	M.E(Computer Science & Engineering)	18	2011
9.	M.E(Manufacturing Engineering)	18	2011
10.	M.E(Computer Science & Engineering with specialization in Networks)	18	2012
11.	M.E(Power System and Engineering)	18	2012

The college boasts of an enviable average placement record of consistent 80% from the first set of graduates.

The faculty are actively involved in research and have completed a/working on projects worth around three crores. Students' projects have also been acclaimed by the media and the society.

The infra –structure facilities are note-worthy, the management sparing no efforts to provide a conducive atmosphere for the teaching- learning and research processes.

The college is the first college to be accredited by TCS in 2010 prior to graduation of the first batch of B.E/B.Tech.students and subsequently by Wipro Technologies in 2011.

Five Engineering departments have submitted Self- Assessment Reports to National Board of Accreditation (NBA) for department assessment and accreditation.

The college is now taking the first step towards Institutional Accreditation and there can be no second opinion on the fact that VCET is all set to scale great heights in the field of education and continue to cater to the needs of young, brilliant minds and serve the society in the coming years.

EXECUTIVE SUMMARY

Velammal College of Engineering & Technology is one of the premier Institutions offering quality education in Engineering and Technology in Tamil Nadu and an institution of high reputation in southern parts of the state. Although only eight years old, realizing the need and value of acquiring accreditation from authorized bodies, the college has groomed itself over the years and is now ready for assessment by self and external bodies. The college has prepared the Self-Study Report for the I cycle of accreditation by NAAC, the study covering all and every aspect of the functioning of the Institution. The summary of the ensuing detailed report is précised below:

CRITERION I – CURRICULAR ASPECTS

The College being an Institution affiliated to Anna University Chennai, adapts to the syllabi prescribed by the University. However, the College devises innovative and creative methods for the delivery of the curricula. Internalizing the needs of the primary stakeholders – the students – and keeping in sight the expectations of other stake holders, teachers practise different techniques to achieve the set outcomes for each course and the overall attainment of the outcomes of each program. Faculty are encouraged to attend Faculty development programs organized by the University and the Institution to boost their knowledge and teaching efficacy. The identified gaps in curricula are bridged by value added courses and extending the contents of the course beyond the prescribed syllabi. The content of the value added courses are designed in consultation with leading industries and companies. Faculty, who are members of the Boards of Studies utilize their experience and expertise in suggesting valuable modifications in the University syllabi, in the interests of the students and the prospective employers.

CRITERION II – TEACHING – LEARNING AND EVALUATION

The College being one of the well- known self –financing Institutions, the admission through Management Quota (35%) is completed early due to the demand. The seats through single-window counseling conducted by Department of Technical Education is also filled within a week of beginning of the process except for a few seats reserved for special categories of students. Admission through Management quota is unbiased and as per the norms of Consortium of Self- Financing colleges.

The academic calendar is planned by the institution within the frame work of the schedule set by the affiliating University, making allowances for the conduct of internal assessment processes for theory and lab courses and for co-curricular activities. Each department has its own envisaged Vision and Mission Statements which are tuned to align with that of the College. The teachingmethods are planned and executed to achieve the course and program outcomes, as the College believes in outcome based education.

The evaluation processes are made very transparent and the marks obtained are displayed on the notice boards. A well-oiled mechanism is in place for addressing the grievances if any raised by the students regarding assessment. Adhering to the dates specified by the University, the internal assessment marks of the students are uploaded in the University website.

Several modes of feedback mechanisms make sure that the teaching-learning and evaluation processes are conducted smoothly and to the satisfaction of stakeholders.

CRITERION III – RESEARCH, CONSULTANCY AND EXTENSION

The research culture of the college is worth mentioning as in a short span of a few years funds for socially relevant research to the tune of about 3 crores have been obtained from agencies like DST, DRDO, AICTE and MSME. Five engineering and all the four Science and the language departments are research centers recognized by the affiliating Anna University. The faculty are exposed to the research culture by the numerous national / international level seminars and conferences organized by the college and by other institutions. The research publications and presentations have been well received and cited by other researchers. The ethos is transmitted to the students who inculcate the interest and rise to the demands of teachers as researchers.

The outcome of the research work has resulted in expertise sharing and offering consultation to the industries, manufacturers or scholars from other institutions. The products / processes developed through research and consultancy have been registered for patenting.

The holistic development of the student is a main focus of the college endeavors as defined in one of the Mission statements of the College. To fulfill the same, a variety of extra-curricular activities such as sports, extension activities including NSS and participation in a variety of club activities are part of the college life of the students. These activities build competitive and team spirits, the emotional intelligence and the mind-set of the students to address the societal needs.

CRITERION IV –INFRASTRUCTURE AND LEARNING RESOURCES

VCET is sprawled over an area of 14.48 acres within 5 km distance from city. The instructional area covers spacious class rooms, tutorial rooms, laboratories and faculty rooms. Computing center, photocopying facility, health care center, spacious canteen with hygienic food, residential blocks for girls and boys, play ground with tennis, basketball and shuttle courts, indoor gymnasium and games such as table tennis, chess and carom, Seminar halls and A/C auditorium addto the infrastructure extravaganza of the college. Potable R.O water supply, uninterrupted power supply through invertors and generators, fire extinguishers for safety and buses to transport students from various parts of the city are the basic well –maintained infrastructure.

A digital well-equipped library with OPAC, e-journals and NPTEL materials enrich the learning experience of staff and students. 32MBps fast Internet connectivity with localized wi-fi facility adds technological support to the learning process.

CRITEION V –STUDENT SUPPORT AND PROGRESSION

In order to sustain the academic development of the learners, a strong back up system has been developed. The financial needs of the students are addressed through facilitating the procurement of Government Scholarships every year and by extending free boarding and lodging for very needy students, accepting the tuition fee in installments etc.

The emotional stability is taken care of by internal and external counseling, Grievance Redressal cell and Gender cell.

An active placement cell headed by an able placement officer ensures that training for on-campus and off campus interviews. The placement officer coordinates with the prospective employers in the IT sector and arranges for on-campus interviews. Foe students who have an aptitude for taking up jobs in core engineering industries, on- campus and off- campus interviews either pooled or exclusively for Velammal students are arranged.

Extra help is given to those who wish to progress towards higher studies and books and materials for clearing qualifying examinations like GATE, TANCET, TNPSC, CAT and GMAT are made available.

The would-be entrepreneurs are exposed to the intricacies of starting and successfully running an enterprise and are also introduced to successful entrepreneurs for emulating and learning.

CRITERION VI – GOVERNANACE, LEADERSHIP AND MANAGEMENT

The Vision, Mission, Quality Policy and the goals of the Institution are well defined and self – explanatory.To attain the stated Vision, Mission and the goals a well-structured process is in place, the mechanism of which is monitored at various levels.

The overall governance of the college is by the Governing council headed by the Chairman. The Vice-Chairman administers the everyday process of the college and the responsibility and leadership is handled by the Principal. Next to the Principal in the hierarchy are the Heads of Departments on the academic side and the Office Manager on the administrative side. The Librarian and the placement officer report directly to the Principal. The administrative officer oversees the effective functioning of the daily chores.

CRITERION VII – INNOVATIONS AND BEST PRACTISES

The college in its tenure in the academic service, has impacted the society with many best practices. The college is well–known for its discipline and academic excellence, followed by its enviable placement record. The special attention bestowed on the slow learners to instill confidence in them to become achievers is an example of the commitment of the teachers. Updating the infrastructure and refurbishing the existing facilities is routinely carried out. With such support extended, the teachers do not lag behind in adopting innovative teaching practices for the dissemination of knowledge. Research activities of the faculty and students have brought the college to the lime light with a funding of three crores in short period.

SWOC ANALYSIS OF THE INSTITUITON:

Strength:

- Velammal Brand Equity in the Society
- Eco – Friendly Environment very near to the city
- Professional Management
- Decentralised Administration
- Enviable Position among Engineering Colleges
- Experience curve and competency of faculty
- Equitable ratio in cadre, gender and expertise
- Infrastructure over and beyond the basic requirements
- Excellent academic results since inception

- Impressive R&D within a short span
- Admirable placementevery year

Weakness:

- Lack of appreciable Consultancy and IPR
- Lack of large scale industries in the district

Opportunities

- Potential to become deemed to be University
- Good number of feeding institutions
- Changing global and societal trends.
- Developing technology and demand for technocrats.
- Scope for entrepreneurs

Challenges

- Government policies towards higher education.
- Changing trends in the mindset of students and parents
- Heterogeneity in students' input
- Changing scenario in the expertise available
- Sustaining the Competitive Advantage
- Inflation and rising prices being not met by fee structure

SECTION B : PREPARATION OF SELF-STUDY REPORT

1. Profile of the Affiliated / Constituent College

1. Name and Address of the College:

Name :	Velammal College of Engineering and Technology	
Address :	Viraganoor	
City : Madurai	Pin :625009	State : TamilNadu
Website :	www.vcet.ac.in	

2. For communication :

Designation	Name	Telephone with STD code	Mobile	Fax	Email
Principal	Dr. N. Suresh kumar	O:0452-2465289	94438-67923	0452-2465285	principal@vcet.ac.in
Vice Principal		O: R:			
Steering Committee Co-coordinator	Dr. Geetha Sivasubramanian	O:0452-2465289 R:	98421-29696	0452-2465285	gsm@vcet.ac.in

3. Status of the Institution:

Affiliated College	☑
Constituent College	☐
Any other (specify)	☐

4. Type of Institution:

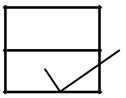
a. By Gender

i. For Men	☐
ii. For Women	☐
iii. Co-education	☑

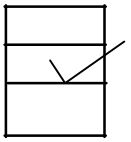
b. By Shift

i. Regular	☑
ii. Day	☐
iii. Evening	☐

5. It is a recognized minority institution?

Yes
No 

If yes specify the minority status (Religious/linguistic/ any other) and provide documentary evidence. _____

6. Sources of funding:
Government Grant-in-aid
Self-financing 
Any other

7. a. Date of establishment of the college: 30/08/2007

b. University to which the college is affiliated /or which governs the college (If it is a constituent college) Anna University Chennai

c. Details of UGC recognition: Nil

Under Section	Date, Month & Year (dd-mm-yyyy)	Remarks(If any)
i. 2 (f)		
ii. 12 (B)		

(Enclose the Certificate of recognition u/s 2 (f) and 12 (B) of the UGC Act)

d. Details of recognition/approval by statutory/regulatory bodies other than UGC (AICTE, NCTE, MCI, DCI, PCI, RCI etc.)

Under Section/ clause	Recognition/Approval details Institution/Department Programme	Day, Month and Year (dd-mm-yyyy)	Validity	Remarks
F.No.37-3	B.E.,/B.Tech/M.E.	04-06-2014	Renewed every year	AICTE
ii.				
iii.				
iv.				

(Enclose the recognition/approval letter)

8. Does the affiliating university Act provide for conferment of autonomy (as recognized by the UGC), on its affiliated colleges?

Yes ☑ No ☐

If yes, has the College applied for availing the autonomous status?

Yes ☐ No ☑

9. Is the college recognized

a. by UGC as a College with Potential for Excellence (CPE)?

Yes ☐ No ☑

If yes, date of recognition: …… (dd/mm/yyyy)

b. for its performance by any other governmental agency?

Yes ☐ No ☑

If yes, Name of the agency …… and

Date of recognition: …… (dd/mm/yyyy)

10. Location of the campus and area in sq.mts:

Location *	Rural
Campus area in sq. mts.	58598.48
Built up area in sq. mts.	20284

(* Urban, Semi-urban, Rural, Tribal, Hilly Area, Any others specify)

11. Facilities available on the campus (Tick the available facility and provide numbers or other details at appropriate places) or in case the institute has an agreement with other agencies in using any of the listed facilities provide information on the facilities covered under the agreement.

✓ Auditorium/seminar complex with infrastructural facilities ♦

♦

✓ Sports facilities ♦

✓ * play ground ♦

swimming pool ♦

✓ * gymnasium ♦

✓ Hostel ♦

♦

♦

* Boys' hostel ♦

♦

i. Number of hostels - 01

ii. Number of inmates - 278

iii. Facilities (mention available facilities)

* Girls' hostel

i. Number of hostels - 01

ii. Number of inmates - 275

iii. Facilities (mention available facilities)

* Working women's hostel

i. Number of inmates

ii. Facilities (mention available facilities)

Residential facilities for teaching and non-teaching staff (give numbers available — cadre wise) ♦

♦

Cafeteria — 01♦

♦

✓ Health centre – ♦

First aid, Inpatient, Outpatient, Emergency care facility, Ambulance…….

Health centre staff –

Qualified doctor Full time ☑ Part-time ☐

Qualified Nurse Full time ☑ Part-time ☐

Facilities like banking, post office, book shops ♦

♦

Transport facilities to cater to the needs of students and staff ♦

♦

Animal house ♦

♦

Biological waste disposal ♦

♦

✓ Generator or other facility for management/regulation of electricity and voltage ♦

Solid waste management facility ♦

♦

Waste water management ♦

♦

✓ Water harvesting ♦

♦

♦

♦

12. Details of programmes offered by the college (Give data for current academic year)

SI. No.	Programme Level	Name of the Programme/ Course	Duration	Entry Qualification	Medium of instruction	Sanctioned/ approved Student strength	No. of students admitted
1.	Under-Graduate	B.E./B.tech	4	HSC/ diploma	English	24000	2238
2.	Post-Graduate	M.E.	2	B.E/B.Tech	English	90	60
	Integrated Programmes PG						
	Ph.D.						
	M.Phil.						
	Ph.D						
	Certificate courses						
	UG Diploma						
	PG Diploma						
	Any Other (specify and provide details)						

13. Does the college offer self-financed Programmes?

Yes * ✓ No *

If yes, how many? ALL

14. New programmes introduced in the college during the last five years if any?

Yes	✓	No		Number	06

15. List the departments: (respond if applicable only and do not list facilities like Library, Physical Education as departments, unless they are also offering academic degree awarding programmes. Similarly, do not list the departments offering common compulsory subjects for all the programmes like English, regional languages etc.)

Faculty	**Departments** **(eg. Physics, Botany, History etc.)**	**UG**	**PG**	**Research**
Science				
Arts				
Commerce				
Any Other	ECE, EEE, CSE, IT, MECH CIVIL	ECE,EEE,CSE IT,MECH,CIV	ECE,EEE,CSE IT,MECH	EEE,CSE,ECE MECH

16. Number of Programmes offered under (Programme means a degree course like BA, BSc, MA, M.Com…)

a. annual system [-]

b. semester system 11

c. trimester [ ]

system [ ]

17. Number of Programmes with

a. Choice Based Credit System [-]

b. Inter/Multidisciplinary Approach [ ]

c. Any other (specify and provide details) [ ]

18. Does the college offer UG and/or PG programmes in Teacher Education?

Yes [ ] No [✓]

If yes,

a. Year of Introduction of the programme(s)…… (dd/mm/yyyy)

and number of batches that completed the programme [ ]

b. NCTE recognition details (if applicable)

Notification No.:……

Date: ……

Validity: ……..

c. Is the institution opting for assessment and accreditation of Teacher Education Programme separately?

Yes ☐ No ☐

19. Does the college offer UG or PG programme in Physical Education?

Yes ☐ No ☑

If yes,

a. Year of Introduction of the programme(s)…….. (dd/mm/yyyy)

and number of batches that completed the programme ☐

b. NCTE recognition details (if applicable) Notification

No.: ……

Date: …… (dd/mm/yyyy)

Validity:……

c. Is the institution opting for assessment and accreditation of Physical Education Programme separately?

Yes ☐ No ☐

20. Number of teaching and non-teaching positions in the Institution

Positions	**Teaching faculty**						Non-teaching staff		Technical staff	
	Professor		Associate Professor		Assistant Professor					
	M*	F*	M*	F*	M*	F*	M*	F*	M*	F*
Sanctioned by the UGC / University /										
Yet to recruit										
Sanctioned by the management/society or other authorized bodies	3	8	2	2	61	56	21	9	41	6
Yet to recruit										

M* - Male F*- Female

21. Qualifications of the teaching staff:

Highest qualification	Professor		Associate Professor		Assistant Professor		Total
	Male	Female	Male	Female	Male	Female	
Permanent teachers							
D.Sc./D.Litt.							
Ph.D.	8	12	2	2	2	5	31
M.Phil.					8	16	24
PG					36	28	64
Temporary teachers							
Ph.D.							
M.Phil.							
PG							
Part-time teachers							
Ph.D.							
M.Phil.							
PG							

22. Number of Visiting Faculty /Guest Faculty engaged with the College. -

23. Furnish the number of the students admitted to the college during the last four academic years.

Categories	Year 1		Year 2		Year 3		Year 4	
	Male	Female	Male	Female	Male	Female	Male	Female
SC	17	21	25	27	29	33	37	48
ST	-	1	-	-	3	2	1	-
OBC	203	170	279	264	271	278	292	328
General	7	10	13	15	13	19	22	12
Others	-	-	-	-	-	-	-	-

24. Details on students enrollment in the college during the current academic year:

Type of students	UG	PG	M. Phil.	Ph.D.	Total
Students from the same state where the college is located	2238	60			
Students from other states of India	-	-			
NRI students	-	-			
Foreign students	-	-			
Total	2238	60			

25. Dropout rate in UG and PG (average of the last two batches)

UG 2-3/year PG NIL

26. Unit Cost of Education

(Unit cost = total annual recurring expenditure (actual) divided by total number of students enrolled)

(a) including the salary component **Rs.98,691**

(b) excluding the salary component **Rs.52,330**

27. Does the college offer any programme/s in distance education mode (DEP)?

Yes [ ] No [✓]

If yes,

a) is it a registered centre for offering distance education programmes of another University

Yes [ ] No [ ]

b) Name of the University which has granted such registration.

[ ]

c) Number of programmes offered [ ]

d) Programmes carry the recognition of the Distance Education Council.

Yes No

28. Provide Teacher-student ratio for each of the programme/course offered

29. Is the college applying for

Accreditation : Cycle 1 [✓] Cycle 2 [ ] Cycle 3 [ ] Cycle 4 [ ]

Re-Assessment: [ ]

(Cycle 1refers to first accreditation and Cycle 2, Cycle 3 and Cycle 4 refers to re-accreditation)

30. Date of accreditation* (applicable for Cycle 2, Cycle 3, Cycle 4 and re-assessment only) Not Applicable

Cycle 1: …… (dd/mm/yyyy) Accreditation Outcome/Result…….....

Cycle 2: …… (dd/mm/yyyy) Accreditation Outcome/Result…….....

Cycle 3: …… (dd/mm/yyyy) Accreditation Outcome/Result…….....

**** Kindly enclose copy of accreditation certificate(s) and peer team report(s) as an annexure.***

31. Number of working days during the last academic year.

310

32. Number of teaching days during the last academic year

219

(Teaching days means days on which lectures were engaged excluding the examination days)

33. Date of establishment of Internal Quality Assurance Cell (IQAC)

IQAC …… (dd/mm/yyyy) - Not Applicable

34. Details regarding submission of Annual Quality Assurance Reports (AQAR) to NAAC. - Not Applicable

AQAR (i) …… (dd/mm/yyyy)

AQAR (ii) …… (dd/mm/yyyy)

AQAR (iii) …… (dd/mm/yyyy)

AQAR (iv) …… (dd/mm/yyyy)

35. Any other relevant data (not covered above) the college would like to include. (Do not include explanatory/descriptive information)

All India Council for Technical Education
(A Statutory body under Ministry of HRD, Govt. of India)

7th Floor, Chandralok Building, Janpath, New Delhi- 110 001
PHONE: 23724151/52/53/54/55/56/57 FAX: 011-23724183 www.aicte-India.org

F.No. Southern/1-2017147110/2014/EOA Date: 04-Jun-2014

To,
The Principal Secretary
(Higher Education) Govt. of Tamil Nadu,
N. K. M. Bld. 6th Floor Secretariat,
Chennai-600009

Sub: Extension of approval for the academic year 2014-15

Ref: Application of the Institution for Extension of approval for the academic year 2014-15

Sir/Madam,

In terms of the provisions under the All India Council for Technical Education (Grant of Approvals for Technical Institutions) Regulations 2012 notified by the Council vide notification number F-No.37-3/Legal/2012 dated 27/09/2012 and norms standards, procedures and conditions prescribed by the Council from time to time, I am directed to convey the approval to

Regional Office	Southern	Application Id	1-2017147110
		Permanent Id	1-8119871
Name of the Institute	VELAMMAL COLLEGE OF ENGINEERING & TECHNOLOGY	Institute Address	VELAMMAL NAGAR, VIRAGANOOR, MADURAI, MADURAI, MADURAI, Tamil Nadu, 625009
Name of the Society/Trust	VELAMMAL EDUCATIONAL TRUST	Society/Trust Address	VELAMMAL GARDENS, 4/951, T.V.S. COLONY,ANNA NAGAR WEST EXTENSION CHENNAI-600 101,CHENNAI,CHENNAI,Tamil Nadu,600101
Institute Type	Unaided - Private		

Opted for change from Women to Co-ed	No	Opted for change of name	No	Opted for change of site	No
Change from Women to Co-ed approved	Not Applicable	Change of name Approved	Not Applicable	Change of site Approved	Not Applicable

to conduct following courses with the intake indicated below for the academic year 2014-15

Note: This is a Computer generated Letter of Approval.No signature is required. Letter Printed On:9 June 2014

Printed By : AE893841

Application Id: 1-2017147110			Course	Full/Part Time	Affiliating Body	Intake 2013-14	Intake Approved for 14-15	NRI Approval status	PIO Approval status	Foreign Collaboration Approval status
Program	Shift	Level								
ENGINEERING AND TECHNOLOGY	1st Shift	POST GRADUATE	COMMUNICATION SYSTEMS	FULL TIME	Anna University, Chennai	18	18	NA	NA	N
ENGINEERING AND TECHNOLOGY	1st Shift	POST GRADUATE	COMPUTER SCIENCE AND ENGINEERING	FULL TIME	Anna University, Chennai	18	18	NA	NA	N
ENGINEERING AND TECHNOLOGY	1st Shift	POST GRADUATE	MANUFACTURING ENGINEERING	FULL TIME	Anna University, Chennai	18	18	NA	NA	N
ENGINEERING AND TECHNOLOGY	1st Shift	POST GRADUATE	NETWORK ENGINEERING	FULL TIME	Anna University, Chennai	18	18	NA	NA	N
ENGINEERING AND TECHNOLOGY	1st Shift	POST GRADUATE	POWER SYSTEMS	FULL TIME	Anna University, Chennai	18	18	NA	NA	N
ENGINEERING AND TECHNOLOGY	1st Shift	UNDER GRADUATE	CIVIL ENGINEERING	FULL TIME	Anna University, Chennai	60	60	NA	NA	N
ENGINEERING AND TECHNOLOGY	1st Shift	UNDER GRADUATE	COMPUTER SCIENCE AND ENGINEERING	FULL TIME	Anna University, Chennai	120	120	NA	NA	N
ENGINEERING AND TECHNOLOGY	1st Shift	UNDER GRADUATE	ELECTRICAL AND ELECTRONICS ENGINEERING	FULL TIME	Anna University, Chennai	120	120	NA	NA	N
ENGINEERING AND TECHNOLOGY	1st Shift	UNDER GRADUATE	ELECTRONICS & COMMUNICATION ENGG	FULL TIME	Anna University, Chennai	120	120	NA	NA	N

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All India Council for Technical Education
(A Statutory body under Ministry of HRD, Govt. of India)

7th Floor, Chandralok Building, Janpath, New Delhi- 110 001
PHONE: 23724151/52/53/54/55/56/57 FAX: 011-23724183 www.aicte-India.org

Application Id: 1-2017147110			Course	Full/Part Time	Affiliating Body	Intake 2013-14	Intake Approved for 14-15	NRI Approval status	PIO Approval status	Foreign Collaboration Approval status
Program	Shift	Level								
ENGINEERING AND TECHNOLOGY	1st Shift	UNDER GRADUATE	INFORMATION TECHNOLOGY	FULL TIME	Anna University, Chennai	60	60	NA	NA	N
ENGINEERING AND TECHNOLOGY	1st Shift	UNDER GRADUATE	MECHANICAL ENGINEERING	FULL TIME	Anna University, Chennai	120	120	NA	NA	N
MANAGEMENT	1st Shift	POST GRADUATE	BUSINESS ADMINISTRATION	FULL TIME	Anna University, Chennai	60	60	NA	NA	N

- Validity of the course details may be verified at www.aicte-india.org>departments>approvals

The above mentioned approval is subject to the condition that VELAMMAL COLLEGE OF ENGINEERING & TECHNOLOGY shall follow and adhere to the Regulations, guidelines and directions issued by AICTE from time to time and the undertaking / affidavit given by the institution along with the application submitted by the institution on portal and subsequently upload and update the student/ faculty/ other data on portal as per the time schedule which will be intimated by AICTE.

In case of any differences in content in this Computer generated Extension of Approval Letter, the content/information as approved by the Executive Council / General Council as available on the record of AICTE shall be final and binding.

Strict compliance of Anti-Ragging Regulation:- Approval is subject to strict compliance of provisions made in AICTE Regulation notified vide F. No. 37-3/Legal/AICTE/2009 dated July 1, 2009 for Prevention and Prohibition of Ragging in Technical Institutions. In case Institution fails to take adequate steps to Prevent Ragging or fails to act in accordance with AICTE Regulation or fails to punish perpetrators or incidents of Ragging, it will be liable to take any action as defined under clause 9(4) of the said Regulation.

(Dr. Kuncheria P. Isaac)

Member Secretary, AICTE

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Printed By : AE893841

Copy to:

1. **The Regional Officer,**
   All India Council for Technical Education
   Shastri Bhawan 26, Haddows Road
   Chennai - 600 006, Tamil Nadu

2. **The Director Of Technical Education,**
   Tamil Nadu

3. **The Registrar,**
   Anna University, Chennai

4. **The Principal / Director,**
   VELAMMAL COLLEGE OF ENGINEERING & TECHNOLOGY
   VELAMMAL NAGAR,
   VIRAGANOOR, MADURAI,
   MADURAI,MADURAI,
   Tamil Nadu,625009

5. **The Secretary / Chairman,**
   VELAMMAL EDUCATIONAL TRUST
   VELAMMAL GARDENS, 4/951, T.V.S. COLONY,ANNA NAGAR WEST EXTENSION
   CHENNAI-600 101,
   CHENNAI,CHENNAI,
   Tamil Nadu,600101

6. **Guard File(AICTE)**

CRITERION – I
CURRICULAR ASPECTS

CRITERION – I
CURRICULAR ASPECTS

1.1 Curriculum Planning and Implementation

1.1.1. State the vision, mission and objectives of the institution, and describe how these are communicated to the students, teachers, staff and other stakeholders.

VISION OF THE INSTITUTION:

"To Emerge and Sustain as a Center of Excellence For Technical and Managerial Education Upholding Social Values."

The vision of the institution is futuristic with a clear focus on what the institution aims to be in the coming years.

MISSION OF THE INSTITUTION:

Our aspirants are

- **Imparted with comprehensive, innovative and value - based education.**
- **Exposed to technical, managerial and soft skill resources with emphasis on research and professionalism.**
- **Inculcated with the need for a disciplined, happy,married and peaceful life.**

The mission statements communicate explicitly the immediate emphasis on the development of the cognitive and affective domains of the entrant into the college.

The realization of the vision and mission are road mapped in the objectives of the institution

OBJECTIVES:

- To provide quality education to students
- To empower students to be committed employees or employers
- To work towards holistic development of students inculcating social values and ethics
- To enhance the competency and excellence of teachers
- To promote research and development among staff and students
- To serve the community and Nation through extension activities.

The eight Golden Goals framed for every stake holder to look up to and achieve are

- Uncompromising regularity and punctuality.
- Academic excellence.
- Depth in subject and general Knowledge.
- Suitable placement or higher education or entrepreneurship.
- Curiosity of learning, research and development.
- Proficiency in Communication skills.
- Professional values and Social ethics.

- Keeping good health and following good habits.

The apparently ambitious yet very realistic Vision, Mission, Objectives and the Golden Goals are communicated to all the stake holders through the following means:

The College hand book records the Vision, Mission, Objectives and the Golden Goals in the first few pages. The Hand Book is issued to all the students and teachers at the beginning of each academic year.

The prospective students and their parents come to know about the above through the college prospectus.

The global public read the remarkable words as these are posted in the college website.

Newsletters published quarterly, carries the significant statements to reiterate the Vision, Mission, Objectives and Goals.

Within the college campus, the statements are displayed on boards placed at prominent locations.

The fresher's are introduced to the Vision, Mission, Objectives and Goals during the bridge course and orientation program.

1.1.2. How does the institution develop and deploy action plans for effective implementation of the curriculum? Give details of the process and substantiate through specific example(s).

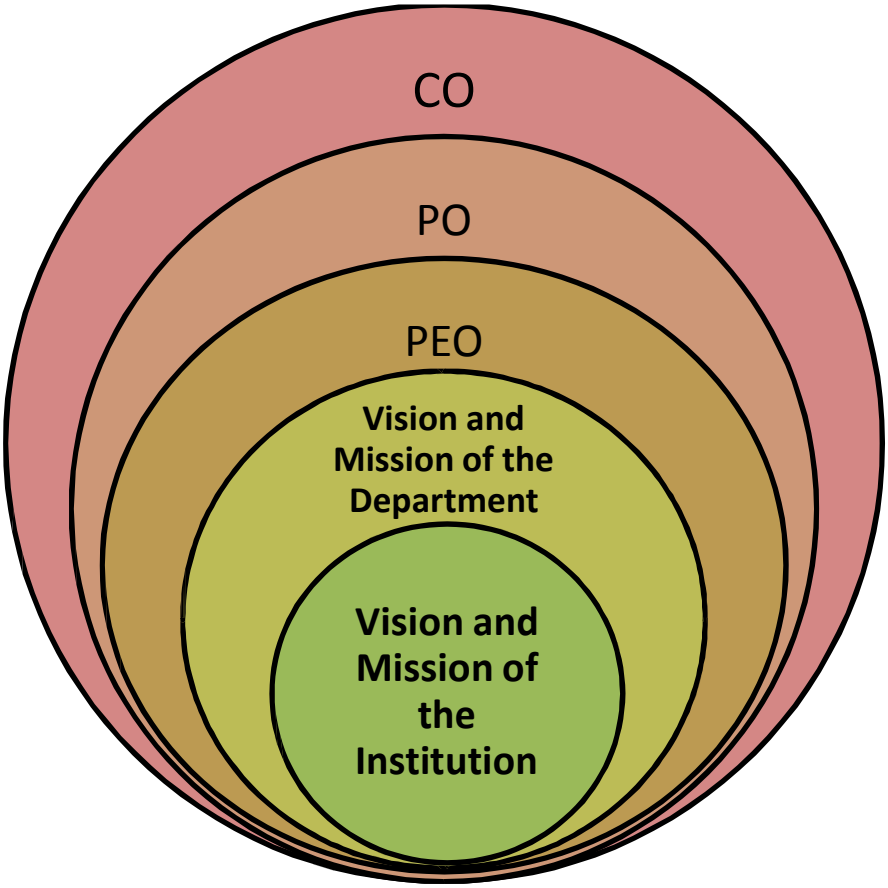
The College being affiliated to the Anna University adheres to the syllabus prescribed by the University.

However the number of working days and the academic calendar of the college are framed by the Principal in consultation with the Heads of Departments (HoD) to accommodate effective coverage of syllabus, co-curricular and extra-curricular activities, aligning with the overall academic calendar of the university.

Each department has set Vision and Mission exclusive for the department, which are aligned with the Vision and Mission of the College. Program Educational Objectives (PEO) and Program Outcomes (PO) are scripted for each program and Course Objectives (CO) and Course Outcomes are defined for each course (theory and lab).

The above are carefully framed to keep in tune with the Vision and Mission of the department and therefore those of the college and also to meet the regulations of Accreditation Board of Engineering and Technology (ABET)

The overlapping relationship chart shows how the departmental vision and mission, PEOs, POs, and COs evolve and interlink with the Vision and Mission of the Institution.



The development and deployment of processes and action plans for effective implementation of the curriculum are detailed below:

S.No	Nomenclature	Functions	Action Plans
1.	Course In- charge	Plans and delivers the course content	Designing course objectives and outcomes Mapping COs with POs Setting targets for students' performance Preparing of course Plan Identifying delivery modes Doing the ground work for teaching materials and aids Ascertaining content beyond syllabus relevant to the course. Deciding on the assessment modes Scheduling and executing improvement classes (coaching classes) for slow learners Planning advanced level

			assignments and projects for advanced learners. Assessing the attainment of outcomes at the end of the course.
2.	Course Coordinator*	Monitors the course in charge	Working along with and aiding the course in charges to execute the action plans.
3.	Module coordinator**	Takes responsibility for the implementation of courses in the module	Guides and oversees the action plans of course in charges and course coordinators and verifies the attainment of COs and POs at the end of the courses.
4.	HoD	Overall In charge for proper functioning of the academic system	Monitors the delivery of courses, achieving outcomes, and designs corrective measures whenever and wherever necessary.

*coordinates the conduct of the same course to more than one class of students – example - Course on Computer programming to I year students is handled by the Computer Science &Engineering(CSE) department for about six sections and the six course in-charges will be coordinated by the course coordinator.

** coordinates the conduct of courses that can be grouped under a module and offered across the semesters horizontally and / or vertically – example-
Electrical and Electronic Engineering (EEE) department offers the following courses which are capsuled under the module Electrical Engineering –
Circuit theory (II sem),
Basic electrical and Electronic Engineering(II sem)
Measurement and Instrumentation (IV sem),
Electromagnetic Field Theory (II sem),
Electrical Machines (Iand II–theory and Lab- IV sem),
Control Systems (theory and Lab- V sem),
Advanced Control Theory (VI sem) and
Design of Electrical Machines (VI sem).

The course in - charge maintains a course file which contains all the documents necessary for the implementation of the action plans

A sample of the contents of the course file is listed below:

- Course Maintenance Sheet
- Vision and Mission of Institute
- Vision and Mission of Department
- Program Educational Objectives (PEOs)
- Program Outcomes (POs)
- Syllabus
- CO-PO Mapping Sheet
- List of Delivery Methods

- Course Plan
- Course Time Table
- CO-PO Attainment Sheet with Proofs
- Instructor Report
- Target Sheet
- Unit Wise Relevant Materials including content beyond syllabus
- Sample University Question Papers
- Assignment/Tutorial/Unit Test Question Papers with Key
- Sample Assignment Answer Sheet
- Cycle Test Question Papers with Key and Sample Answer Sheet
- Slow Learners List of every Cycle Test along with remedial measures
- Model Question Paper with Key and Sample Answer Sheets
- Consolidated Mark Sheet

The proper documentation of the various process involved is teaching-learning process is audited by the Assessment Cell during the semester.

In addition, the following mechanisms are in place for checks and balances.

Name of the committee	Constitution	Functions
Program Assessment Committee	HoD and Senior faculty of the department	Checking the attainments of COs and CO–PO mapping values of all courses offered in the Program, submitted by the courses in - charge and compiled by the classes in-charge and translating the data into measurable parameters.
Department Advisory Committee	HoD –Convenor Principal – Management Representative Senior Professors of the Department Academician Alumni Representative Industry Representative Parent Representative	Approval of PEOs and POs for the academic year Planning strategies for sustained development Modification of PEOs and POs based on the previous year's outcomes

The Department Advisory Committee of the Mechanical Engineering Department is given as an example:

S.NO	NAME	ROLE	DESIGNATION

1	Dr. N. Suresh Kumar	Management representative	Principal
2	Dr. G. Manikandan	Department representative	Head of the Department (Module –Industrial Engineering)
3	Mr. S. Rajeshwaren	Alumni representative	Design Engineer/Static Division
4	Mr. R. Sivarajah	Industrialrepresentative	Founder & Director Native Lead Foundation - CII MADURAI ZONE
5	Mr. P. Nataraj	Industrialrepresentative	AGM – Training TVS Training Academy
6	Mr. S. Nagarajan	Industrialrepresentative	Technical Head TECNICHE Engineering System
7	Mr. Elango	Representative of Professional bodies	Senior Executive SAE
8	Dr. V. Anbumalar	Academic representative	Professor (Module - Design)
9	Dr. P. Rajesh Kanna	Academic representative	Professor (Module - Thermal)
10	Mr. Stephen	Parent represenattive	LIC Officer

Direct involvement of students in assessing the effective planning and delivery of course content is ensured through Class Committee Meetings. The composition of the Class Committee is

Convenor – a senior faculty from a department other than that of the students'

Members – Class Representatives and two more students of the class.

Thus the multi-level appraisal ensures that appropriate methods are developed and deployed for effective implementation of the curriculum.

1.1.3. What type of support (procedural and practical) do the teachers receive? (from the University and/or institution) for effectively translating thecurriculum and improving teaching practices?

The affiliating Anna University conducts Faculty Development Program (FDP) every year to refresh and enhance the knowledge level of the faculty and equip them for the challenging academic demand.

Teachers are encouraged and supported by the college to attend these programs by extending financial support in terms of TA and DA and granting on-duty leave for the duration of the program.

The Institution makes sure that the faculty are continuously exposed to the recent advances in different disciplines by extending support to various endeavors like

- Conduct of FDP programs in specialized areas
- Conduct of national level Seminars on current trends in various field of engineering & technology
- Inviting eminent academicians for delivering invited lectures in the seminars and conferences
- Organizing guest lectures for covering specific segments of teaching – learning process

Also conducive work environment is made available by

- Scheduling the academic calendar well in advance of the start of the year with ample time frame for not only the regular teaching –learning process but also to accommodate the above mentioned activities.
- Well-equipped laboratories.
- Digitized, well stocked library, with computers, internet connectivity, e-books and journals and a reprography facility, that is kept open beyond the working hours.
- Access to NPTEL videos and lectures for course material preparation.
- Internet connectivity all over the campus
- Wi-fi connectivity in departments
- Installing A-V aids in class rooms like LCD projectors to augment the originality of teachers in delivering the course content
- Air-conditioned seminar halls fitted with A-V aids
- Weekly, through-satellite interaction with academicians from reputed institutions like NIT and IIT in a program titled 'Ask a question'

1.1.4. Specify the initiatives taken up or contribution made by the institution for effective curriculum delivery and transaction on the Curriculum provided by the affiliating University or other statutory agency.

Although the curriculum is prescribed by the affiliating Anna University, the college takes every initiative to make the delivery more than ordinary syllabus coverage.

Teachers have been trained in teaching methodologies and content planning and delivery in programs like Mission 10X.

As a result, matching the content of a course with Bloom's taxonomy, deciding the modes of delivery synchronized with the level of the content and designing the assessment methods and bridging the gap between the prescribed syllabus and the expectation level of employers by including content beyond syllabus have become a routine activity for the teachers.

A sample list of Content Delivery Methods & Teaching Aids based on Bloom's K-Levels

List of Bloom's K-Levels	List of Content Delivery Methods	List of Teaching aids

K1	Remember	1. Lecture with Discussion 2. Lecture with Illustration 3. Lecture with Animated Videos	Black Board 2. LCD 3. Videos 4. Computer Models 4. Software 5. Power Point presentations and animations
K2	Understand	1. Lecture with Discussion. 2. Lecture with Demonstration 3.Collabrative Learning 4. Problem Solving (Text book oriented)	
K3	Apply	1. Group Discussion 2. Role Play 3. Problem Solving (from GATE Question papers) 4. Laboratory Work 5.Flipped Class Room	
K4	Analyze	1. Think Pair Share 2. Lab Experiments 3.Case Studies 4.Simulations	
K5	Evaluate	1. Case Studies 2. Debate 3. Laboratory Work	
K6	Create	1. Mini Projects 2. Final year Projects	

Teachers are given autonomy in planning and executing their theory and laboratory classes.

Laboratory classes are handled by two teachers in order to ensure personal attention to the students.

Courses in - charge have the liberty to request for the equipment/ accessories needed for effective conduct of their lab classes, through the HoD and the college considers the request favorably.

Site visits and industrial visits are encouraged to provide real time exposure to students.

Industrial Collaboration and signing MoUs are facilitated to augment thelearning process of the students.

1.1.5. How does the institution network and interact with beneficiaries such as industry, research bodies and the university in effective operationalization of the curriculum?

The major stakeholders of the Institution are Students, Parents and Employers.

The chief beneficiaries are the Software and core industries, Research Organizations, Government Organizations and various Public enterprises.

The skills of the primary stake holders – the students – should match the expectations of the beneficiaries in order to attain the program outcome.

Therefore, the institution ensures regular networking with Universities, industries and research bodies in a variety of ways.

- The Department Advisory Committee includes member from industry / prospective employers and the suggestions and modifications recommended by the member for augmenting or reframing the syllabus is communicated to the University through members of boards of studies.
- MoUs are signed between the departments and related industries/research organizations for effective transfer of technical knowledge to the students and to relate the theoretical knowledge to direct application. Some of the MoUs signed are

S. No.	Department	Organization	Outcome of Collaboration	Year of agreement
1	Civil	Nokia Here maps	Acquisition of GPS knowledge.	2014
2	Mechanical	Native lead(aCII initiative)	Fostering entrepreneurship among students.	2013
3	CSE	CISCO	Acquiring international certification.	2010
		Velammal Educational Trust	Consultancy services in Computer hardware assembly, Installation & servicing and software development	2012
		TYCO	To equip the students with hardware knowledge.	2013
4	IT	Sundaram Business Solutions.	To start a rural BPO for the benefit of people around the college	2010
		VMCH&RI, Anupanadi combined with Big A Solutions, Madurai	Developing a software/ network for real time need-. allocating the closest available ambulance to the patient and transportation to the nearest appropriate hospital.	2015
5.	ECE	Purple Leap, Bangalore. RealtimeTechno Soft, Chennai Avian	Training in robotics Training and project guidance R&D activities	2010 2013

		Aerospace, Chennai.	To establish center for unmanned systems research	2014
6	EEE	McNold Transformer	In-plant Training and project work	Under process

- Top notches from industries / renowned academic institutions are invited to be members of Governing Council of the college. The Council meets annually to discuss in detail the curriculum delivery, value additions to prescribed syllabus and content beyond syllabus to enhance the employability of the students.
- Workshops/lectures are arranged by tying up with the industries/research organizations on the latest trends in a field of study.
- Faculty members who are in Boards of Studies of the respective discipline in the affiliating university communicate the recommendations of the industrialists / external experts to the university.
- The faculty members are encouraged to submit research proposals to various Government research organizations/public and private sectors to receive the research grants and promote research activities in the departments.
- Faculty are members in various professional bodies such Society of Automotive Engineers (SAE), Energy & Fuel Users' Association of India (ENFUSE), Indian Society for Technical Education (ISTE), Native Lead Foundation (NLF), Computer Society of India (CSI), Institution of Electronics and Telecommunication Engineers (IETE), Confederation of Indian Industry (CII), Institute of Electrical and Electronics Engineers (IEEE) which help them organize workshops and programs for the enrichment of curriculum.

1.1.6. What are the contributions of the institution and/or its staff members to the development of the curriculum by the University? (number of staff members/departments represented on the Board of Studies, student feedback, teacher feedback, stakeholder feedback provided, specific suggestions etc.

The institution is affiliated to the Anna University. It contributes to the development of the curriculum by communicating the stakeholders' suggestions to the university. Taking into consideration the suggestions of the students, faculty and other stakeholders through feedback, Department Advisory Committee, and the Governing Council, faculty who are members of the Board of Studies of Anna University submit recommendations to respective board of studies of the University for consideration of inclusion in the curriculum.

The following faculty members are members of the board of studies of AnnaUniversity

1	Dr.V.Anbumalar	Mechanical	2011 – 2013

	Professor	Engineering (UG)	(R2013)
2	Dr.P.Alli Professor and Head	CSE& IT- UG	2013-2014
3	Dr.S.Vasuki Professor and Head	ECE-UG programme (Anna university tirunelveli) ECE- UG programme (Anna university Madurai, convenor) ECE-PG programme (Anna university Chennai)	2009-2010 2010-2012 2013 onwards
4	Dr. Shunmugalatha Professor and Head	EEE- UG programme EEE- PG programme	2007-2010 2011-2012

Taking into consideration the suggestions of the students, faculty and other stakeholders through feedback and also through Department Advisory Committee, the college makes its suggestions to the respective board of studies of the University for the Consideration for inclusion in the curriculum.

Some of these are illustrated below:

S.No	Department	Stakeholder	Comments	Year in which communicated
1.	MECH	Alumni	Exposure to students on software which do not form apart of regular curriculum	2012*
2.	EEE	Students	Need more Industrial Visits Need of multi-disciplinary projects	2015**
3.	ECE	Faculty	Change of EMI/EMC subject from elective to Core	2012***

* Although not taken up by Anna University, the college has implemented the same under placement training

**executed by the college

*** Accepted and implemented by Anna University

1.1.7. Does the institution develop curriculum for any of the courses offered (Other than those under the purview of the affiliating university) by it?

If 'yes', give details on the process (Needs Assessment, design, development and planning)and the courses for which the curriculum has been developed.

The college being an affiliated college has to execute the curriculum designed by the University.

However, in order to enhance the teaching –learning process and also to fill gaps that exist between the prescribed syllabi and the employers' expectation, value

added courses are designed and offered to the students in the pre- final and final year of study.

The departments have three underlying motives for offering vale added courses:

1. The Anna University syllabus is found inadequate in certain areas and has to be supplemented to enable the student to acquire holistic knowledge.
2. Students should be exposed to the current and recent advances in their area of study.
3. Students should be completely primed for fulfilling the needs of the prospective employers.

Converting the motives into objectives, value added courses are framed and executed. A few examples of the value added courses are

a) CISCO Certified Network Associate Course (CCNA) – Offered by the CSE department for the III and IV UG year students. The department has an MoU signed with CISCO and teachers have been trained by CISCO to deliver the course.
b) AICTE BSNL employability enhancement Training Program Certificate Course – Internship in BSNL Arranged by the ECE Department spread over the III year of the program.
c) Cloud computing – Offered by the IT department for the III And IV year students.
d) Business English Certificate (BEC) Course – Offered by the English department for II years – mandatory for all II years to audit the course.

1.1.8. How does institution analyze/ensure that the stated objectives of curriculum are achieved in the course of implementation?

Each department has a set of framed objectives for its curriculum and the college has deployed various mechanisms to ensure that the stated objectives of the curriculum are achieved during the course of its implementation.

These are enumerated below:

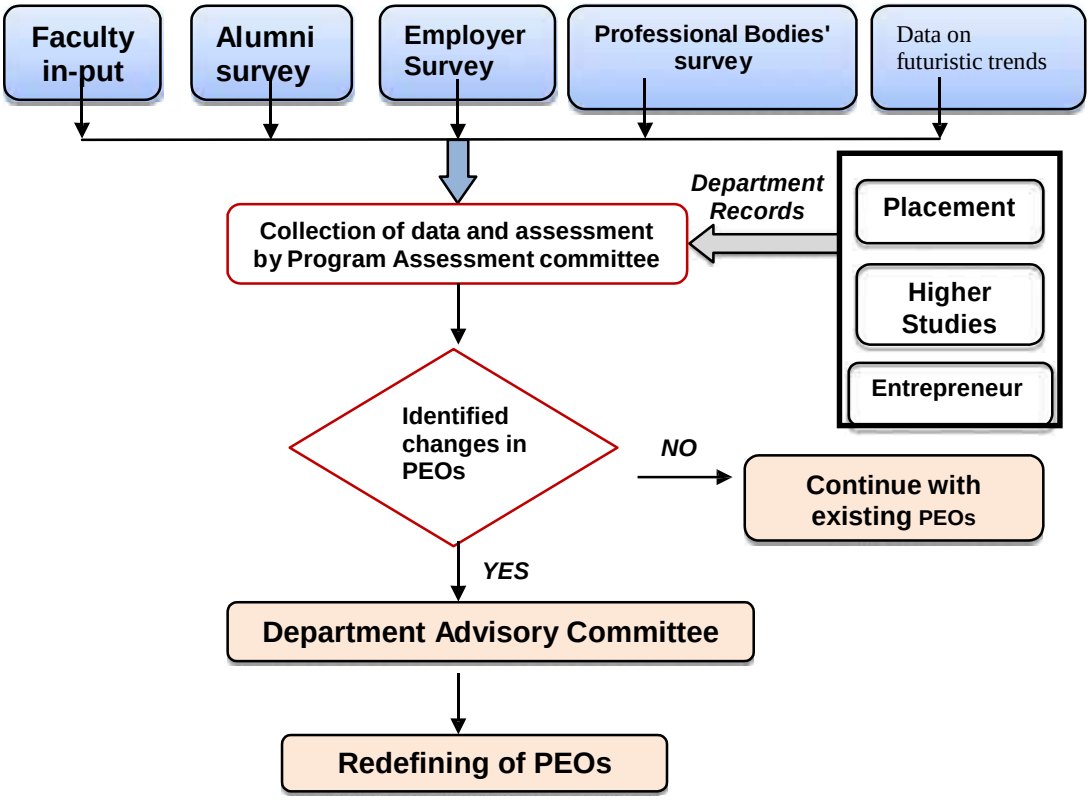
1. The course in-charge communicates the course objectives and outcomes to the students at the start of the course.
2. Class Committee meetings are held thrice a semester to keep track of the progress of the course and the assessment tools employed by the teacher for effective teaching and evaluation. The reports of the class committee meetings are reviewed by the Head of the concerned department and consultations are held with the course in-charge to set right pit falls if any.
3. The student level is gauged at the beginning of the semester and slow learners are helped with extra coaching to help them join the main stream without much time lag.
4. Middle of semester and end of semester feedback is obtained from all the students for the courses undergone with respect to the content delivery, course outcomes and this evaluation tool is used in augmenting the teaching –learning process and in enhancing the skills of the teacher.
5. The exit survey by the outgoing students on the effectiveness of the program has a major role in redefining objectives for the courses and the program.

6. Employer feedback, where ever possible is gathered and put to use in realizing the objectives of the program.
7. The program assessment committee ensures that the course outcomes are realized and correlated with program outcomes.
8. The Department Advisory Committee plans and executes strategies for sustained development of the program.

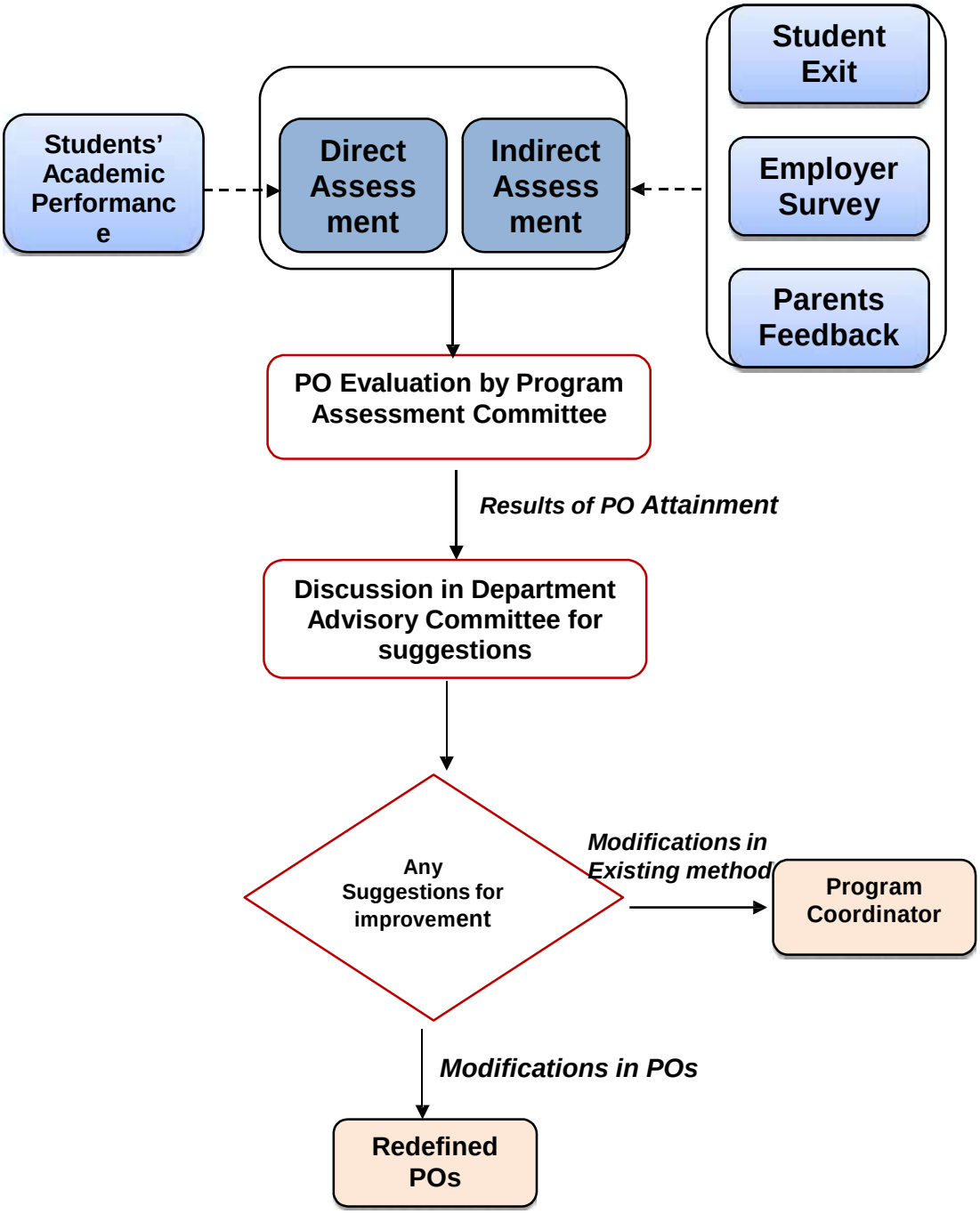
The following tools are deployed to measure the achievement of the stated objectives.

Direct Assessment Modes	**Indirect Assessment Modes**
Performance analysis of formative assessment procedures	Faculty In-put
Reports of Class Committee meetings	Alumni Survey
Students Feedback	Employer Survey
Exit survey	Parent Survey

The measured parameters are collated and taken up for analysis by the Program Assessment Committee which assesses the level of achievement of PEOs. The findings are then presented to the Department Advisory Committee for approval / modification of PEOs as shown:



The Program Advisory committee also analyses the data collated from direct and indirect assessment modes and examines the achievement level of POs. The results of analysis are reviewed by the Department Advisory Committee and modifications are recommended as flow charted below:



Thus a well-thought out procedure takes care of the monitoring mechanism.

1.2Academic Flexibility

1.2.1. Specifying the goals and objectives give details of the certificate/diploma/skilldevelopment courses etc., offered by the institution.

In order to realize the Vision and achieve the Mission of the college, the college has to take many extra miles in the academic road. Hence designing

and offering courses to bridge the gap between the University prescribed syllabus and the knowledge level required, certificate courses and skill development courses are offered to the students to boost their level of employability and research capabilities.

The following table lists such courses offered at VCET.

S.No	Department	Value added course	Goals	Objectives
1	Mechanical Engineering	Pro-E – Modelling Course	Understanding and applying essential design -editing techniques in solid modeling	To acquire an overview of software available for mechanical component design. Students will be able to use CAD software for modeling mechanical components
		Purple Leaf – Robotics	Appreciating the vast opportunities available in the field of robotics	To gain knowledge in the role of Mechanical engineering in the manufacture of robotics and application of robotics in manufacturing
2	CSE	CISCO	To become well - qualified network engineers	Given a LAN/WAN configuration scenario, students will be able to describe the basic networking processes used for communication across Local Area Networks, Wide Area Networks and the Internet.
3.	IT	Cloud Computing	To keep abreast of the recent trends or emerging techniques in the field of Information Technology	(a)To acquire a complete overview of virtualization techniques. (b) To gain expertise in cloud computing to meet the competitive global market. (c) To enhance the employability

		HTML/Java Script	Designing highly proficient web sites	(a) To acquire fundamental skills of web designing (b) to apply the knowledge of JAVA in developing and maintaining web sites
4	ECE	Signal & Image Processing using Xilinx System Generator	Comprehending and applying the knowledge in signal image processing.	To learn the basics and applications of signal image processing
5	EEE	MATLAB Cloud computing	Developing skills in use of MATLAB Skill development in System administration &Computer management	To gain knowledge in programming skills in MATLAB To gain expertise in network security administration
6	English	Business English Certificate	Gaining proficiency in English language	To develop reading , writing and speaking skills in English
7	ECE and Mechanical engineering	NCVT Courses	Enhancing the psychomotor ability of students	To develop dexterity in working with instruments and machines

In addition to the above, to equip the students towards progression to higher studies in renowned institutions and to enhance their employability in government and private sector industries special training in appearing for and clearing GATE examination meritoriously is offered in all departments.

1.2.2. Does the institution offer programs that facilitate twinning /dual degree? If 'yes', give details.

NO. The college being an affiliated college, it does not have the autonomy to offer twinning / dual degree programs.

1.2.3. Give details on the various institutional provisions with reference to academic flexibility and how it has been helpful to students in terms of skills development, academic mobility, progression to higher studies and improved potential for employability.

Although the college has little choice in academic flexibility in the true sense, flexibility in the learning process has been introduced by modifying the working hours to include greater autonomy in the augmenting the skill sets of

students. Classes are extended up to 5.30 PM and the time slot between 4.05 PM to 5.30 PM – the eighth period – is exclusively ear marked for academic and co-curricular assignments. Some of such tasks are

Value added courses
NCVT training programs
Intensive exercises in programming skills (C and C++)
Placement training programs such as training in on line general, numerical and technical aptitude tests, soft skills training, group discussions and mock interviews using internal and external resources
Sessions on entrepreneurship
Training for GATE examinations and
Working on mini projects

The same slot is also utilized for giving additional support for slow learners by way of coaching classes.

Apart from the above, organizing seminars and workshops on recent developments is a regular feature of all departments. Eminent engineers, scientists, industrialists and management personnel are invited to the seminars to expose and motivate the students to employment scenario and high standards of learning and research.

Notable outcomes of the above endeavors are

(i) internship in companies
(ii) Summer training in industries
(iii) high campus placement in IT and core companies
(iv) admission into reputed institutions in India and abroad for PG programs
(v) Perceptible inclination towards entrepreneurship
(vi) Branching out into Business Management courses and opting to train for Civil services

These evidence that the academic frame work is very conducive for the enhanced potential for employability and progression to higher studies.

1.2.4. Does the institution offer self-financed programs? If 'yes' , list them and indicate how they differ from other programs, with reference to admission, curriculum, fee structure, teacher qualification, salary etc.

The institution is a purely self- financing private institution. The college is affiliated to Anna University, Chennai and recognized by AICTE, New Delhi.

The programs offered are:

S.No	COURSES	Year of introduction
1.	B.E. Computer Science and Engineering	2007
2.	B.Tech-Information Technology	2007
3.	B.E. Electronics and Communication Engineering	2007
4.	B.E. Electrical and Electronics Engineering	2007
5.	B.E. Mechanical Engineering	2008
6.	B.E. Civil Engineering	2011
7.	M.E. Manufacturing Engineering	2010
8.	M.E. Computer Science & Engineering	2011

9.	M.E. Communication systems	2011
10.	M.E. Power Systems Engineering	2012
11.	M.E Computer science Engineering with specialization in Netwoks	2012

The admission, curriculum, teacher qualification etc. are as per the University and AICTE norms.

1.2.5. Does the college provide additional skill oriented programs, relevant to regional and global employment markets? If 'yes' provide details of such program and the beneficiaries.

The college does not offer any skill oriented degree/ diploma programs. However to enhance the abilities of students, several value added, NCTVand BEC courses are made available to the students to opt for and augment their skills.

1.2.6. Does the University provide for the flexibility of combining the conventional face-to-face and Distance Mode of Education for students to choose the courses/combination of their choice" If 'yes', how does the institution take advantage of such provision for the benefit of students?

The University does not provide such flexibility.

1.3 Curriculum Enrichment

1.3.1. Describe the efforts made by the institution to supplement the University's Curriculum to ensure that the academic programs and Institution's goals and objectives are integrated?

Recalling the objectives and goals of the institution at this juncture,

OBJECTIVES:

- To provide quality education to students
- To empower students to be committed employees or employers
- To work towards holistic development of students inculcating social values and ethics
- To enhance the competency and excellence of teachers
- To promote research and development among staff and students
- To serve the community and Nation through extension activities.

The eight Golden Goals framed for every stake holder to look up to and achieve are

- Uncompromising regularity and punctuality.
- Academic excellence.
- Depth in subject and general Knowledge.
- Suitable placement or higher education or entrepreneurship.
- Curiosity of learning, research and development.
- Proficiency in Communication skills.
- Professional values and Social ethics.
- Keeping good health and following good habits.

the following efforts are taken by the institution to ensure that that the goals and objectives are integrated.

1. Students are encouraged to present papers and participate in project competitions at the national level by extending financial support for their travel and registration. Cash prize winners are warded equal prize money by the management during the College Day celebrations. – such an encouragement triggers curiosity of learning, augments communication skills, gives depth in subject and promotes R & D culture among the students.
2. National level seminars and workshops are conducted regularly and eminent academicians, industrialists and corporate heads are invited to deliver lectures and interact with faculty and students – the faculty and students get exposed to and gain knowledge in the current trends in research and application of their discipline. These help the faculty to boost their competency levels, enrich their research activities and involve students in their research. As students are involved in organizing the programs, the leadership qualities are fine tuned.
3. Adopting the bottom up approach, the teachers identify the gray areas in the syllabus and include contents to expose the students to a higher platform of learning. This ensures that (i) quality education is assured and (ii) the commitment and proficiency of the teacher are increased.
4. Students are geared towards employability from the first year of study and receive intensive training through a variety of skill development courses including inculcating of soft skills that are scheduled beyond working hours and during semester breaks. The students' employability skills, personal values and social ethics are amplified.
5. Value added courses are offered to supplement the syllabus prescribed by the university and to patch the fissures. These courses give a distinct advantage to the students during employment processes
6. Laboratory work includes experiments more than those mandatory which help students design and execute novel work.
7. Well stocked digitized library ensures that the seeker is satiated in the thirst for knowledge.
8. Focusing on the students who wish to take up higher studies, special coaching is offered to students in clearing qualifying and competitive examinations like GATE, CAT, TOEFL etc. The outcome of this extended help is two-fold- (i) students confidently opt for higher education in reputed institutions and (ii) an additional merit for entry into MNCs and Central Government undertakings.
9. Business English Certificate course is offered and has been made mandatory for the II years and this affirms the enhancement of communication skills of students.
10. Taking up and completing mini- projects and the final year compulsory project work, build the research culture in the campus.
11. Activities through NSS and ECO club open up opportunities for serving the community and internalizing social ethics and values.
12. Participation in sports keeps the body and mind fit.

1.3.2. What are the efforts made by the institution to modify, enrich and organize the curriculum to explicitly reflect the experiences of the students and cater to needs of the dynamic employment market?

The primary stakeholders of the institution are the students both present and past. Their viewpoints suggestions and recommendations have always been found to be invaluable in modifying and enriching the curriculum.

Therefore, obtaining feedback from the students and alumni on the planning and execution of the program of study plays a vital role.

The direct feedback on the various courses offered is obtained as follows:

1. Through the class committee meetings thrice a semester to ascertain that the syllabus coverage and beyond syllabus coverage is adequate. Valid suggestions regarding inclusion of certain topics in theory and experiments in lab are discussed in the department and implemented.
2. Twice a semester feedback on teacher performance from every student is obtained on line and the information is collated and given to the faculty members for appropriate implementation.
3. Exit survey at the end of the program brings out the need for improvement in various aspects of the academic life of the college.

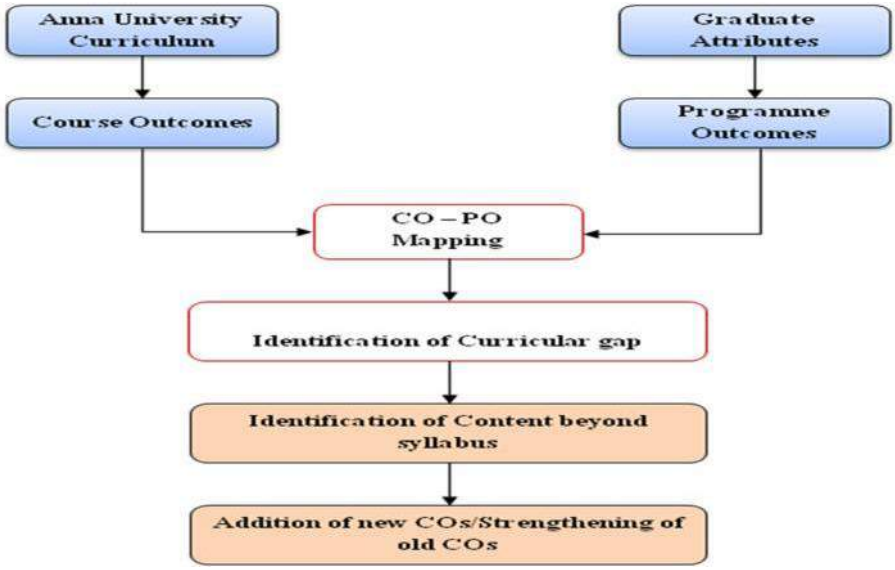
The indirect feedback is obtained from the alumni whose input is valuable as they correlate their class room experiences to work place / higher studies.

The alumni feedback also reflects on the attainment of Graduate Attributes which in turn is a measure of achievement of POs.

These feedbacks are analyzed and fitting actions are taken by the Program Assessment Committee and reviewed and modified by Department Advisory Committee. The placement trainings are kept abreast of the needs of the students towardstraining for placement and the strategies adopted by the Placement cell are reviewed.

When the course outcomes are redefined or modified, the course delivery modes and content beyond syllabus are reframed wherever necessary. The process is looped for sustained development.

The following flow chart is self-explanatory:



Feedback obtained	Identified gap	Practice adapted to bridge the gap
Employer feedback Mr. D J C Barnes Former HR Professional, Madura Coats	Engineers lack professional etiquette and professionalism	Guest lecture on Basic etiquette and professionalism
Alumni feedback Need for knowledge on value added software to survive in global market	Exposure to students on software which do not form a part of regular curriculum	Training on software like "FLUIDSIM", "SOLIDWORKS" for knowledge enhancement and better employability
Parents' feedback Difficulty in communication even though the wards possess technical knowledge	Language barrier in effective communication and knowledge transfer at workplace	BEC (Business English Certificate) course made mandatorily in the II year.

The Entrepreneur Development Cell caters to the ambitions of those who wish to become self-employed and conducts relevant programs to nurture the inclination towards entrepreneurship. An example of such a program is

Program : Business Model Canvas
Organization involved : Native Lead
Resource persons : Ms. Archana, Head,Programs and Relationships
Mr, Shebas Khan, CEO
SyryaInfotech
Period : March 2014
Participants : 58 students of Mechanical Engineering
Outcome : Goals and expectations of Startup Nursery

1.3.3. Enumerate the efforts made by the institution to integrate the cross cutting issues such as Gender, Climate Change, Environmental Education, Human Rights, ICT etc., into the curriculum?

Realizing the need to integrate certain cross cutting issues such as Environmental Education and Gender,the college has taken the following initiatives:

Environmental Education

As per the prescribed syllabus of Anna University, students of all branches of study undergo a course on Environmental Science and Engineering in the III/ IV/ V semester. The course is a comprehensive course encompassing all the aspects of environment such as natural resources, biodiversity, pollution, alternate energy sources and human intervention - causes and effects and social ethics.

This course gives an awareness to the impact of unethical human activities on the environment and its immediate and future ill effects and also on the role of professionals in preserving and protecting the environment.

The students take up mini projects in their respective discipline incorporating green issues and faculty give a thrust on green processes in the final project also.

Apart from the mandatory course, an **ECO club** functions in the college; the club enrolls members and carries out activities to create awareness on environmental conservation. A few examples are

(a) Oath taking on International Ozone Preservation day
(b) Webinar on 'Good Bye Global warming and Bye Bye Pollution'
(c) Painting and Oratorical Competitions on topics like 'war for water' and 'Air quality- Past, present and Future'
(d) Posting stickers in class rooms with phrases like

DO NOT LITTER
SAVE ELECTRICITY
SAVE WATER
SAVE OUR EARTH
WE HAVE NOWHERE ELSE TO GO

In addition, members of the club monitor the cleanliness of the classroom and the campus, taking turns.

Trees have been planted in the hostels and the ECO club members in residence water and nurture these trees.

Gender cell

The objective of the gender cell is

To facilitate a gender-sensitive and congenial campus environment at VCET so that anyone in the campus is not subjected to gender specific discrimination.

The cell takes care of the issues related to gender if any and also popularizes gender equality through programs like International Women's Day celebrations. Empowerment programs like Leadership Training for women Officials are also conducted.

A Grievance Redressal Committee takes care of the suggestions and grievances of the students and staff at all levels of the college.

Information and Communication Technology enabled teaching

In the past 10 years or so, there has been a paradigm shift in the teaching learning process with the advent of ICT. This shift has changed the focus from the teacher to the facilitator and the student to the participatory learner.

Use of website, information through blogs, instruction dissemination through group mail IDs, on line submission of assignments are part of the teaching learning process.

Library automation and OPAC contribute to time saving and efficient use of library resources.

Localized LAN contributes to effective handling of lab classes.

NPTEL videos are viewed by the students for better comprehension.

Data handling, storage and distribution has been simplified and the college is moving towards paperless administration and college automation.

1.3.4. What are the various value-added courses/enrichment programs offered to ensure holistic development of students?

For the holistic development and for better employability of the students, the college has chalked out several value added courses and motivational programs.

The value- added courses do just that- value add to the academic experience of the students. The students become better equipped for seeking employment or initiate their own enterprises. The list of value added courses are

S.No	Value Added Course	Need Assessment	Execution Plan	Evaluation method
1	CISCO	To help students acquire internationalCCNA certification,	Instructors trained by CISCO conduct classes.	CISCO conducts tests and issues certificates
2	Pro-E	To enhance modeling and analytical skills among students for product development.	Through authorized trainees.	Online assessment test.
3	Robotics	To train students for real time embedded system development.	Conducting the course through workshops with hands-on training	Project evaluation
4	MATLAB – Applications	To train the students towards simulation methods in electrical engineering.	Pantech Solutions- Hands on training.	Hands on training Conducting tests.
5	ICTACT – Cloud Computing	To explore about the modern tool usage in software.	Certification Course	On line examination

Non- evaluative motivational programs and shows are also arranged for the personality development of the students. Students either participate or form the organizational team in the following programs.

S.No	Enrichment program	Year	Resource person
1.	Motivational talk	2008,2009, 2011	Mr. Jeyaprakash Gandhi, Educational Consultant and Analyst
2.	Spark	2009	Mr. Ramesh Prabha
3.	Le quiz – quiz programs for the high school pupils	2009,2010,2011,2012 &2013	Quiz masters, Trichy
5.	Nuclear Energy Educational Meet for all students and the public	2012	Shri.R.S.Sundar Station Director, Kudankulam Nuclear Project and team
6.	Energy Awareness Camp for school children	2010	Mr. R.Bharathidasan, .Sr. Manager/ TVS Rubber Factory. ErA.Sahayaraj Senior Manager/Training, TNEB,Madurai
		2011	Mr.V.AnguSamy Chief Manager, Wind Care India Pvt.Ltd.,Coimbatore Mr.PandianArivudaiNambi Manager-V belts, Fenner India Ltd.,Madurai
		2012	Er.J.BrittoSahayan, Asst.Vice President BGR Energy Ltd, Chennai
7.	Motivational talk	2013	Mr. Rajesh Fernando, Value Educator, Bangalore
8.	Motivational talk – Ullathanaiathu Uyarvu	2014	Mr. Sivakumar – Actor , Writer, Orator

1.3.5. Citing a few examples enumerate on the extent of use of the feedback from stakeholders in enriching the curriculum.

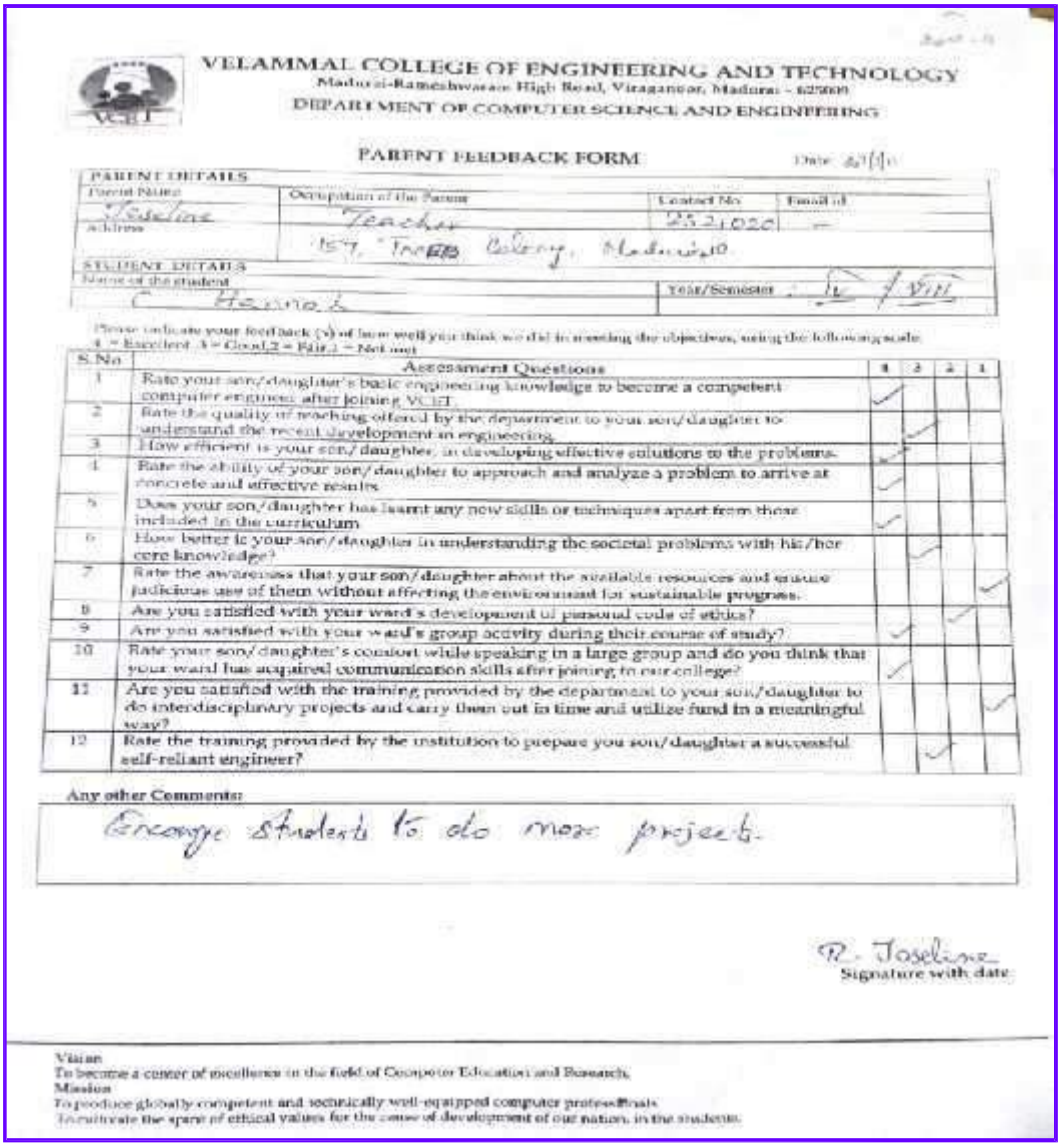
The Institution gives primary importance to obtain feedback from all the stakeholders and to incorporate the needs and requirements cited into the curriculum to enrich the teaching-learning process.

Regular feedback is obtained from students during their tenure as a student.

Alumni are invited to post their feedback either in person during alumni meets or on line through the alumni web page of the college website.

Parents are encouraged to register their opinions either formally during the parent meetings or informally during their visits to the departments.

A sample of the feedback registered by a parent is sampled below:



VELAMMAL COLLEGE OF ENGINEERING AND TECHNOLOGY
Madurai-Rameshwaram High Road, Viraganoor, Madurai - 625009
DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

PARENT FEEDBACK FORM

Date: 25/11/15

PARENT DETAILS

Parent Name	Occupation of the Parent	Contact No	Email id
R. Joseline	Teacher	9952102C	-

Address: 157, TNEB Colony, Madurai-10

STUDENT DETAILS

Name of the student	Year/Semester
C. Hemnath	IV / VIII

Please indicate your feedback (✓) of how well you think we did in meeting the objectives, using the following scale:
4 = Excellent 3 = Good 2 = Fair 1 = Not met

S.No	Assessment Questions	4	3	2	1
1	Rate your son/daughter's basic engineering knowledge to become a competent computer engineer after joining VCET.	✓			
2	Rate the quality of teaching offered by the department to your son/daughter to understand the recent development in engineering.		✓		
3	How efficient is your son/daughter, in developing effective solutions to the problems.	✓			
4	Rate the ability of your son/daughter to approach and analyze a problem to arrive at concrete and effective results.	✓			
5	Does your son/daughter has learnt any new skills or techniques apart from those included in the curriculum.	✓			
6	How better is your son/daughter in understanding the societal problems with his/her core knowledge?		✓		
7	Rate the awareness that your son/daughter about the available resources and ensure judicious use of them without affecting the environment for sustainable progress.				✓
8	Are you satisfied with your ward's development of personal code of ethics?			✓	
9	Are you satisfied with your ward's group activity during their course of study?	✓			
10	Rate your son/daughter's comfort while speaking in a large group and do you think that your ward has acquired communication skills after joining in our college?	✓			
11	Are you satisfied with the training provided by the department to your son/daughter to do interdisciplinary projects and carry them out in time and utilize fund in a meaningful way?				✓
12	Rate the training provided by the institution to prepare you son/daughter a successful self-reliant engineer?		✓		

Any other Comments:

Encourage Students to do more projects.

R. Joseline
Signature with date

Vision
To become a center of excellence in the field of Computer Education and Research.
Mission
To produce globally competent and technically well-equipped computer professionals.
To cultivate the spirit of ethical values for the cause of development of our nation in the students.

The final comment is very legible – requesting to encourage students to carry out more projects.

This request has been conceded and students are encouraged to involve in mini projects from the first year onwards and also apply for short term trainings in industries.

An alumni request for exposure of students to use of software which do not form apart of regular curriculum has been acknowledged by arranging for training insoftware like “FLUIDSIM”, “SOLIDWORKS” for knowledge enhancement and better employability.

Communication Skills development is ensured through Business English Course and this also has been due to feedback obtained from a parent.

Thus the feedback mechanism has proved instrumental in enriching the curriculum and in enhancing the knowledge bank of the students.

1.3.6. How does the institution monitor and evaluate the quality of its enrichment programs?

The value added courses that issue certificates are considered as mandatory academic courses and monitoring and evaluation procedures are standardized suiting to the nature of the course.

The other less formal enrichment programs are assessed mainly by the feedback obtained from the participants.

Some of the enrichment programs provided are:

S. no	Department	Enrichment programs	Evaluation method
1.	Civil	ANSYS Valuation principles	Feedback
2	MECH	Sustainable e & I (electronic & Industrial) Waste management - National level Seminar Green Materials, Manufacturing Technology and Applications - GMMTA'14 - National conference Guest lecture on Entrepreneurship development Guest lecture on Entrepreneurship Awareness Entrepreneurship Awareness Camp Guest lecture on "Energy Options" National Level Business Plan Competition Guest lecture on "**New Venture"**	Feedback
3	CSE	Placement Training Programs	Feedback
4	IT	One day seminar on "How to write and present a technical paper" Awareness program on First Aid and Road Safety" Conducted a Student Convention on "Recent and Future Trends in Computing Sciences" Seminar on "Recent research trends in Indian Council for Medical Research" National Level Business Plan Competition Entrepreneurship Awareness Camp	Feedback
5	ECE	Three - day seminar on labview. Seminar on HFSS. Robotics training programme. Workshop on unmanned aerial vehicle. Seminar – Recent Trends In Communication Technologies (RETRIC) Three- day workshop on fixed wing UAV One-day workshop by AVIAN aerospace	Feedback
6	EEE	MATLAB applications	Feedback

A complete statistics of the programs organized by the various departments stand witness to the positive feedback obtained from the students for organizing more enrichment programs.

1.4 Feedback system

1.4.1. What are the contributions of the institution in the design and development of the curriculum prepared by the university?

The college is an affiliated Institution and follows the curriculum designed by the Anna University. But faculty who are members of Boards of Studies of various disciplines communicate the recommendations of the modifications in the syllabus, which have been found necessary through various feedback mechanisms.

Modifications that have not been incorporated by the University board, are brought into the academic endeavors of the college under the nomenclature of enrichment or value- added courses.

The faculty members who have been nominated as members in different board of studies of Anna University Chennai are

S.No	Board of study member	Program
1	Dr.V.Anbumalar Professor	Mechanical Engineering (UG)
2	Dr.P.Alli Professor and Head	CSE& IT- UG
3	Dr.S.Vasuki Professor and Head	ECE-UG program (Anna university Thirunelveli) ECE- UG program (Anna university Madurai-Convenor) ECE-PG program (Anna university Chennai)
4	Dr.S.Shunmugalatha Professor and Head	EEE- UG program EEE- PG program

1.4.2. Is there a formal mechanism to obtain feedback from students and stakeholders on Curriculum? If 'yes', how is it communicated to the university and made use internally for curriculum enrichment and introducing changes/new programs?

The feedbacks are received from the stakeholders both manually and online. All the feedbacks regarding the curriculum are internally analyzed in the department level meetings and the suggestions on introducing changes are forwarded to the university through the Principal or through the members of the board of studies.

The sample of feedback format for the employer to respond is

Attainment of PEO

1. **Employer survey**

Name of company
Name of the Candidate
Year of joining your organization
Designation

PEO Statement 1: Graduates of the program will have a successful career as a Mechanical Engineer by imparting Mechanical Engineering concepts and practical knowledge.

1. Please rate our graduate's mechanical engineering conceptual skills in his/her job

1. Very Good	**2. Good**	**3. Satisfied**	**4. Average**

2. Please rate our graduate's practical knowledge in his/her job

1. Very Good	**2. Good**	**3. Satisfied**	**4. Average**

PEO Statement 2: Graduates of the program will pursue higher education and research in the field of mechanical engineering.

1. How far is our VCET graduate prepared to acquire new skills/techniques

1. Very Good	**2. Good**	**3. Satisfied**	**4. Average**

2. How far is our VCET graduate ready to find new solutions through research

1. Very Good	**2. Good**	**3. Satisfied**	**4. Average**

PEO Statement 3: Graduates of the program will exhibit Scientific and Engineering expertise and perform as a Professional Engineer

1. Rate our VCET graduate's professional behavior in his/her responsibilities.

Excellent	**Very Good**	**Good**	**Satisfactory**

The responses help in modifying the modes of delivery of curriculum, planning the content beyond syllabus, introducing novel experiments in the lab courses and designing new projects for the students.

1.4.3. How many new programs / courses were introduced by the institution during the last four years? What was the rationale for introducing new courses/programs?

The courses introduced by the institution in the past four years are:

S.NO	COURSES	YEAR OF STARTING	RATIONALE FOR STARTING
1.	B.E. Civil Engineering	2011	Civil engineering is the second-oldest engineering discipline after military engineering and is the most indispensable discipline of the society. The demand for CIVIL engineers will not wane off. Hence to impart quality Civil engineering knowledge, B.E. Civil Engineering program was introduced.
2	M.E. Computer Science & Engineering	2011	To retain and bring in the gifted students for higher studies and promote R&D activities.
3	M.E. Communication systems	2011	To provide quality education in the Post graduate level.
4	M.E. Power	2012	Tomotivatethe students towards

	Systems Engineering		higher studies and promote R&D activities.
5	M.E.Manufacturing Engineering	2010	To provide quality manufacturing environment for graduates.
6	M.E. Network with specialization in Computer Science	2012	The Master of Network Engineering is a specialized program for qualified engineers seeking to move into middle management. This course is intended to produce network engineers who are responsible for developing, installing, updating, and maintaining network including upgrading software and hardware and incorporating new devices.
7	Increase in intake in B.E CSE	2012	Due to positive growth in IT sector, demand was more.
8	Increase in intake in B.E Mechanical Engineering	2012	Demand for Technical man power in Energy and Manufacturing sector.
9	Increase in intake in B.E EEE	2013	Demand for Technical man power in Energy Sector
10	Increase in intake in B.E ECE	2013	Due to positive growth in IT and communication sector and popular demand

Any other relevant information regarding curricular aspects which the college would like to include

The departments of ECE, EEE, CSE, Mechanical, Physics, Chemistry, English and Mathematics have been recognized as Research centers by anna University..Scholars can register under recognized Ph.D. supervisors for full time and part time doctoral pursuit. The restriction of being an affiliated institution is relaxed to a large extent by incorporating to the curriculum value added course, content beyond syllabus, mini projects every semester, intensive placement training sessions, Business English Course and the like.

CRITERION II
TEACHING - LEARNING AND EVALUATION

CRITERION II
TEACHING - LEARNING AND EVALUATION

2.1. Student Enrolment and Profile

2.1.1. How does the college ensure wide publicity and transparency in the admission process?

Admission Process

The college admits students selected through single window counseling system framed by Tamil Nadu Engineering Admission (TNEA) jointly carried out by DOTE (Directorate of Technical Education) and Anna University. 65% students are admitted under Government Quota through Counseling based on HSC marks and the remaining 35% are admitted under Management Category. The Management category admission is based on the ranking provided by Consortium of Self - Financing Professional, Arts & Science Colleges in Tamil Nadu, Chennai.

The college ensures publicity and transparency in admission by the following modes

Prospectus

The Institute is one of the widely known institutes in Tamil Nadu. The institute releases a prospectus every year high-lighting the courses offered and infrastructure of the college along with the admission process to serve as an information brochure.

Institution Website

The Institute's web site is maintained up-to-date and contains all the relevant information about the college. Anna University Counseling Code (5986) is displayed in the home page in college website.

Advertisement in Regional/ National Dailies

Advertisements are given in leading newspapers on a regular basis ensuring wide-spread publicity. The advertisements include the web site address and the contact details for obtaining prospectus and application forms.

Electronic media

The salient features of the college are scrolled in local cable TV channels and advertised in Radio FM for a specific period of time.

Hoardings are put up at prime locations in the vicinity.

Educational Fairs

Stalls are put up in Educational fairs in association with media partners to create opportunity for students and parents to obtain firsthand information about the college.

The admission process is kept transparent as the norms for admission are strictly adhered to, be it through single window system or under Management category.

2.1.2 Explain in detail the criteria adopted and process of admission (Ex. (i) merit (ii) common admission test conducted by state agencies and national agencies (iii) combination of merit and entrance test or merit, entrance test and interview (iv) any other to various programs of the Institution

I. Admission to Under Graduate study

Through single window system

- Based on marks of prescribed subjects in qualifying examination.

- Marks will be reduced to a base of 200 (Mathematics -100, Physics and Chemistry -50 each)
- The cut- off marks for admission under each quota is announced by the DoTE and the students opt for the colleges based on their cut- off, the reputation of the college and the availability of seats in a program of their choice.
- Marks obtained by each candidate of other qualifying examinations /Boards are equated with that of Tamil Nadu State Board by adopting the method of normalization.

Admission procedure -Reservation of seats as per Government norms

Reservation	
Open Competition	31 %
Backward Class	26.5 %
Backward Class Muslim	3.5 %
Most Backward Class &De Notified Communities	20 %
Scheduled Caste	15%
Scheduled Caste -Arunthathiyars	3%
Scheduled Tribes	1%

Management Quota

General rules mentioned by Anna University for undergraduate admissions are applicable for admission under management quota. Students need to apply to the consortium stating their preference for admission into a particular college. Admission is based on the merit list compiled by the consortium

II. Admission to Post Graduate Study

Government Quota

Admission for Post graduate program is conducted through TANCA (Tamil Nadu Common Admission) based on marks obtained in GATE (Graduate Aptitude Test in Engineering) or TANCET (Tamil Nadu Common Entrance Examination). Candidates for the admission to the first semester of the Master's Degree Program shall be required to have passed an appropriate U.G degree examination of Anna University or any University or authority accepted by the Syndicate of Anna University as equivalent.

Management Quota

Admission for management Quota is conducted through the Consortium. Students qualifying in the eligibility test conducted by the consortium are eligible for admission.

2.1.3 Give the minimum and maximum percentage of marks for admission at entry level for each of the programs offered by the college and provide a comparison with other colleges of the affiliating university within the city/district.

Admission into I year of the UG programs is by either the single window system or through Consortium of SF Colleges (MQ). The admission through single window system (GQ) is based on the cut-off marks for each reservation quota. The admission under MQ is also based on amerit list compiled by the Consortium.

A similar procedure is followed for the direct admission into the II year for Diploma Holders and for admission into PG programs.

Minimum and Maximum cut-off marks - Government Quota

S.No.	Degree	Academic Year 2010-2011		Academic Year 2011-2012		Academic Year 2012-2013		Academic Year 2013-2014		Academic Year 2014-2015	
		Min %	Max %	Min %	Max %	Min %	Max %	Min %	Max %	Min %	Max %
1	CSE	71.33	96.5	71.75	97.83	74.33	97.67	43.67	96.83	57.5	98.67
2	CIVIL	0	0	77	95.17	54.83	94.63	76.67	96.83	78.5	97.33
3	ECE	74.83	97.17	63.17	97.5	77.7	97.5	60.67	96.83	70	97.83
4	EEE	50	95.83	76.5	96.33	48.33	95.83	44	94.5	48.67	97.83
5	IT	64.83	96	65.33	95	63.33	95.5	51.33	95.17	53.5	96.25
6	MECH	88.5	95.25	84	98.08	86.41	98.25	80	97.37	58.62	97

Minimum and Maximum cut-off marks - Management Quota

S NO	DEGREE	Academic Year 2010-2011		Academic Year 2011-2012		Academic Year 2012-2013		Academic Year 2013-2014		Academic Year 2014-2015	
		Min %	Max %	Min %	Max %	Min %	Max %	Min %	Max %	Min %	Max %
1	CSE	60.33	90.83	54.33	91.67	51	92.67	54.98	90.67	55.67	92.83
2	CIVIL	0	0	45.17	92	54.83	87.33	56.83	91.33	48.17	86.83
3	ECE	57.67	91.5	66.17	93.17	59	93.5	62.33	95.5	53	95
4	EEE	63.83	91	63.67	91.67	50.17	91.67	55	91.83	51.83	95
5	IT	57.5	90.5	62.33	86	43.83	85.17	53	85.67	51.75	86.25
6	MECH	60	67.5	81.5	85	64.87	92	60	90	61.75	89.5

Comparison with Other Colleges – Based on cut-off marks - GQ
VCET – Velammal College of Engineering

S.No.	Degree	Category	VCET	RCET	SACS	VCE	PTR	UCET	LMEC	SIT	MEPCO	KLNCE	PSNA
1	B.E	OC	184.66	110.25	138.25	85.75	83.25	101.5	96	170.5	191	180.75	180.25
		BCM	179.66	108.5	116	105	94.75	86.75	104.75	165.75	188.75	174.25	174
		BC	153	89.75	131.5	98.25	92.5	100	127.5	167.25	190.25	177.75	178.5
		MBC	158.66	79	101	82.25	79	88.25	81	150	185.25	158.75	165.5
		SC	96.66	78.75	83.5	93.75	86	81.5	77.5	39.75	164.75	96.75	111.25
		SC(A)	109.66	93.5	NIL	129.25	99	116.75	104.25	88.75	143.25	122.5	119.25
		ST	NIL	101	102	140.75	NIL	NIL	113.25	77.5	150.75	153.5	NIL

Although we have provided a comparison with all the colleges in and around Madurai, a healthy competition prevails in admission into the highlighted institutions. It is worth mentioning that the cut off marks of VCET are very much comparable with the competitors although these colleges have a track record of more than 15 years of service in the field of education whereas VCET is much younger – eight years old. Yet the demand for admission into the college is high and the GQ seats are filled within a week of starting the single window system admissions.

TANCET Scores for PG admissions into VCET (GQ)

S.No.	Degree	Academic Year 2011-2012		Academic Year 2012-2013		Academic Year 2013-2014		Academic Year 2014-2015	
		Min %	Max %	Min %	Max %	Min %	Max %	Min %	Max %
1	M.E	20.53	35.8	13.84	43.7	20.36	44.69	16.57	49.279

TANCET Scores for PG admissions into VCET (MQ)

S.No.	Degree	Academic Year 2011-2012		Academic Year 2012-2013		Academic Year 2013-2014		Academic Year 2014-2015	
		Min %	Max %	Min %	Max %	Min %	Max %	Min %	Max %
1	M.E	12.17	44.61	10.43	43.48	10.83	39.17	12.5	36.67

2.1.4 Is there a mechanism to review its admission process and student profiles annually? If yes, what is the outcome of such an analysis and how has it contributed to the improvement of the process?

The order of admission into engineering colleges through single-window system is the descending order of the cut off marks. Therefore filling up of seats in the first few days reflects the reputation of the institution. The seats made available by VCET for admission are filled within the first week.

Once the admission is over, the quality of admission is reviewed in terms of the maximum and minimum cut- off marks of the entrants both under GQ and MQ. The review helps in identifying the diversity of students (from first generation to third or higher generation) preferring to enter VCET for tertiary education and helps plan the publicity more effectively.

2.1.5 Reflecting on the strategies adopted to increase/improve access for following categories of students, enumerate on how the admission policy of the institution and its student profiles demonstrate/reflect the National commitment to diversity and inclusion

- SC/ST
- OBC
- Women
- Differently abled
- Economically weaker sections
- Minority community
- Any other

The institution by itself does not frame an admission policy as the entry into professional colleges is through the single window system and as per the government norms the seats are taken up quota wise / category wise. In recent years, due to the advent of the multiple applications of ICT, the Anna University updates the hourly status of admission through counseling, from day1, in its website. Hence it is possible for the college to track the college's standing with regard to number admitted through GQ.

Befitting a reputed college, the seats are taken up very fast and are filled within the first few days of counseling. A few seats remain unclaimed usually in the SC (aruthathiyar)and ST category. If these seats are not filled by the stipulated deadline (August 15th), the college may fill the same through MQ.

All the OBC seats are taken, including the minority quota for minority community (BCM) and normally there is no vacancy in this quota.

There is no gender bias in the admission and the first two days are allotted specially for the differently abled.

The admission to MQ is liberal and any reasonably meritorious candidate can seek admission through MQ. There is no discrimination in admission and all categories are admitted on an equal footing.

This admission procedure automatically ensures that the National Commitment to diversity and inclusion is taken care of.

The economically weaker section getting into the UG program forms quite a considerable percentage every year. After admission, the college assists the eligible students in obtaining government scholarships and applying for educational loans from the banking sector. The Velammal Educational Trust

offers financial aid to needy students.

The college also aids the first generation learners to apply and receive the scholarship offered by the Government for first generation learners.` 20000/- towards tuition fee every year is borne by the government. The following table shows the admission pattern for the past five years through GQ

Percentage of seats taken (category wise) through GQ

UG/PG	CATEGORY	Year				
		2010-2011	2011-2012	2012-2013	2013-2014	2014-2015
UG	SC/SCA/ST	16.28	12.64	8.27	21.53	25.42
	OBC	65.67	66.76	67.34	68.59	70.02
	MINORITY	2.855	4.69	4.1325	3.0325	4.425
PG	SC/SCA/ST	11.11	15.35	4.57	3.44	11.11
	OBC	77.74	76.61	67.69	54.35	77.74
	MINORITY	2.80	2.50	0.03	0.05	2.80

2.1.6. Provide the following details for various programs offered by the institution during the last four years and comment on the trends i.e. for increase/ initiated for improvement.

Departmentwise intake per academic year (UG/PG)

Programs	Sanction intake	No: of students admitted	Demand Ratio	Sanction intake	No: of students admitted	DemandRatio	Sanction intake	No: of students admitted	Demand Ratio	Sanction intake	No: of students admitted	Demand Ratio	Sanction intake	No: of students admitted	Demand Ratio
	2010-2011			2011-2012			2012-2013			2013-2014			2014-2015		
U.G. Degree															
CSE	60	60	1:1	60	61	1:1	120	117	1: 0.9	120	101	1:.84	120	112	1: 93
CIVIL	-	-	-	60	58	1:.96	60	61	1:1.01	60	57	1:.95	60	58	1:.96
ECE	90	88	1:.97	90	90	1:1	90	84	1:.93	120	113	1:.94	120	108	1:0.9
EEE	90	90	1:1	90	92	1:1.022	120	103	1:.85	120	101	1:.84	120	104	1:0.9
IT	60	56	1:0.9	62	62	1:1	60	60	1:1	60	55	1:0.9	60	49	1:0.8
MECH	60	56	1:0.9	60	58	1:.96	120	114	1:.95	120	108	1:.9	120	112	1:.93
P.G. Degree															
M.E. – CSE	NA	NA	NA	18	18	1:1	18	18	1:1	18	18	1:.1	18	13	1:.72
M.E. – CS	-	-	-	18	18	1:1	18	18	1:1	18	18	1:1	18	16	1:.88
M.E. – NE	NA	NA	NA	NA	NA	NA	18	18	1:1	18	18	1:1	18	6	1:0.3
M.E. – PS	NA	NA	NA	NA	NA	NA	18	16	1:.88	18	16	1:.88	18	13	1:.72

M.E-MT	NA	NA	NA	18	5	1:.3	18	10	1:.5	18	16	1:.8	18	12	1:.6

Trends in admission:

UG

- The demand ratios for CIVIL and Mechanical engineering have remained almost consistent – in the case of Mechanical engineering this is in spite of doubling the strength in the last three years. This indicates that these two programs have remained popular in the society and appears to be preferred choice by boys.
- The trend for CSE, ECE and EEE shows a slight decline in the demand but this is only after the increase in strength. The increase in strength was requested for after observing the demand in the previous years of demand for the courses. However the admission demand also oscillates with the employment opportunities in the IT sector.
- The demand for IT program has registered a sharp dip – may be due to the employment market and also because the CSE and IT courses are considered almost equivalent.

  The college is taking measures to step up the demand ratio to 1 for these courses by enhancing the placement opportunities.

PG

- The admission into PG courses has registered a steady decline in 14-15 the reasons for which are quite explicit.
- The trend has not been very encouraging for Manufacturing Technology, Power Systems and Network Engineering.
- One of the reasons might be a hike in the employment market
- Another might be that these courses are common PG courses offered by many colleges and students might prefer government and aided colleges over a self-financed college.
- The management is considering offering less common but in-demand courses.

2.2 Catering to Student Diversity

2.2.1 How does the institution cater to the needs of differently-abled students and ensure adherence to government policies in this regard?

The single window system provides for differently abled to seek admission in the college of their choice ahead of the others by scheduling the counseling dates accordingly.

The College also does not discriminate the differently abled from the others in any way.

Still, from the inception of the college,no one who can be categorized as differently abled has sought admission into the college.

2.2.2 Does the institution assess the students' needs in terms of knowledge and skills before the commencement of the program? If 'yes', give details on the process.

The institution does not implement a formal procedure for assessing the students' needs prior to the commencement of the program. However the cut-off marks are taken as an indication for the level of students entering the institution. The medium of instruction is also taken as a pointer. The college then plans post-commencement orientation / bridge courses for the entrants. Anna University also schedules mandatory bridge courses in Physics, Mathematics and English to be conducted in the first fortnight of commencement of classes.

2.2.3What are the strategies adopted by the institution to bridge the knowledge gap of the enrolled students (Bridge/ Remedial/ Add on/ Enrichment Courses,etc.) to enable them to cope with the program of their choice?

Bridge course

The management organizes a bridge course for the management quota students for prior to the commencement of classes for a duration of a week to ten days,

The objectives of the bridge course are

At the end of the bridge course the student will

i) Become confident about talking and writing in English.
ii) Realize that mathematics is enjoyable and easy.
iii) Learn time management, study skills and note taking.
iv) Learn to acquire soft skills and develop personality.

Areas covered:

1. English.
2. Mathematics.
3. Personality Development and Soft skills.
4. Time Management , Learning Methods and note taking
5. Ethics of VCET

This bridge course serves as a starter to the college schedule and acclimatizes the students to the college environment. The fresher gets introduced to time management, learning methods, aspects of personality development and communication. More importantly the students get exposed to the work ethics of the college.

It is unviable to offer such a program to the students admitted through GQ because the duration of counseling extends over a period of three – four weeks and the candidates are permitted to pay the college fees till a day prior to the commencement of classes.

However, the Anna University has taken this into account and has made it mandatory for colleges to conduct a bridge course for the first two weeks of classes with prescribed contents to be covered in English, Mathematics and Physics. This is executed diligently by the departments. This process help students settle into the college routine and get acclimatized to the college environment.

The college has taken the initiative to similarly help out the lateral entry students from polytechnic stream at the start of the second year. Bridge courses are conducted in Mathematics, core subjects and in English language.

Orientation program

The first day of entry to the college is commemorated as **Fresher's Day** and eminent speakers are invited to address the new comers and their parents.

The Chairman of the college (who is the Chairman of the Velammal Educational Trust) delivers an explanatory talk on the Vision, Mission and the expectations of the college and the role of parents in meeting these expectations. The parents and students clarify their uncertainties and qualms with the Principal, I year Coordinator and the Heads of Departments. The program thus gives a positive impetus to the academic endeavor.

Improvement / coaching classes

Within a week of entry into the college, teachers identify the students hailing from rural background and those from Tamil as the medium of instruction in school. Form the second week onwards they are enrolled in improvement / coaching classes in order to help them come into the mainstream of work and to cope with the assiduous efforts they have to adopt. The coaching classes are conducted for every subject of study in the semester. Such an exercise boosts the confidence of the students and improves their performance.

During the course of the semester, motivational drives are arranged to keep up the tempo of the developmental process.

During the progression of the course, the coaching and improvement classes are continued to maintain consistency in performance.

A plethora of enrichment courses including value added courses are offered from the I year onwards to augment the academic level of the students and to prepare them for higher studies / employment / entrepreneur ship. A few are outlined below:

- Pro-E – Modeling Course
- Robotics
- CISCO/TYCO
- Cloud Computing
- HTML/Java Script
- Signal & Image Processing using Xilinx System Generator
- MATLAB
- Business English Certificate
- NCVT Courses like Basic Electronics-Repair & Maintenance of Power supply
- Training for GATE examination
- Mini projects

Students are constantly encouraged to participate in paper presentation, seminars, workshops and project contests to enhance and show case their skills.

2.2.4. How does the colleges ensitize its staff and students on issues such as gender, inclusion, environmentetc.?

The efforts taken by the institution to sensitize the staff and students of the above mentioned cross-cutting issues are enumerated below:

1. The Gender Cell of the college with its constituting members sanitizes the new entrants on the objectives and functions of the cell. The cell addresses gender related issues(which are few and far in between) promptly and judiciously and assure that issues of similar nature do not recur.
2. Team participation in curricular, co-curricular and extra-curricular activities ensures unbiased cooperation –some examples are –Paper presentations and participation in seminars and workshops; Blood donation through NSS; partaking in sports and cultural activities etc. Residential life also paves way for peaceful coexistence.
3. The mechanism of the college includes a Grievance Redressal Cell which receives grievances and restores balance.
4. Under the Anna University curriculum, all the students have to audit and complete a course on Environmental Science &Engineering in the III/IV/V semester. The course emphasizes the need to respect and conserve the environment. The ECO club of the college also takes up the responsibility of disseminating information and creating awareness though invited talks, competitions, programs, posters and the like on environmental issues like global warming, ozone layer depletion, carbon neutrality etc.

2.2.5 How does the institution identify and respond to special educational learning needs of advanced learners?

- Advanced learners are identified through (i) HSC marks (ii class room interaction (iii) written test performance and (iv) laboratory

work(v)voluntary participation in the co-curricular activities such as Seminar, Symposium, etc. and winning awards.

- The advanced learners are encouraged to take seminars and teaching assignments as part of the classroom activities; the topics allotted being beyond the normal syllabus.
- They are encouraged to enroll their names in paperpresentation, programming and project contests.
- The students are enthused to take up value added courses and earnadditional certificates while completing their degree program.
- Self-learning is inspired by making available videos of NPTEL and MIT courseware.
- The advanced learners are encompassed in intensive programs related to placement and training
- Their names are recommended for internship in leading companies.
- They are provided with assistance for taking up and clearing qualifying and competitive examinations like GATE, GRE and TOEFL.
- Cash awards are distributed to the class toppers during the College Annual day Celebrations as a motivation to sustain their standards.
- Accolade charts are displayed for others to note and appreciate the advanced learners.

Thus the college ensures that advanced learners' needs are met and they are supported in their quest for knowledge.

2.2.6 How does the institute collect, analyze and use the data and information on the academic performance (through the program duration) of the students at risk of dropout (students from the disadvantaged sections of society, physically challenged, slow learners, and economically weaker sections etc. who may discontinue their studies if some sort of support is not provided)?

The college has chalked out a clear mechanism for identifying possible drop outs and extending support.

The academic performance is a fairly good reflection of the tendency to drop out of the program.

The mentors keep a record of the twenty students entrusted in their care; the record contains information on the cultural, geographical, educational, economic and family background of the mentee. They also keep continuous track of the academic performance of each mentee.

The mentor identifies the reasons for underperformance and /or decline in academic performance - language barrier, under nutrition andother health issues, cultural gap, economic status, first generation learner, first time resident student etc.

The needed support system is immediately extended to the mentee.If the mentor feels that the reason for underperformance is more deep rooted than the normal, the mentee is referred to the chief counselor. The chief counselor extends further support and in cases that warrant parents / guardians are called for a discussion to ensure that the student has maximum support from the family. The student is referred to a psychological counselor if needed.

Students who need health care are directed to Velammal Medical College Hospital and Research Institute where he /she can receive medical assistance both as out and in-patient at a very concessional rate. This facility

is extended to family members of the students and this serves as a stress reliever in a few cases.

Coaching classes are scheduled to aid the slow learners to help them increase their performance level and gain confidence in overcoming the language barrier and in the subject area. Intensive coaching classes are conducted prior to the university examinations to augment the preparation for the examinations and to help them overcome the fear / insecurity in facing the examinations.

Special bridge courses are arranged for the lateral entry students in the II year to help them cope with theory subjects including Mathematics.

The financial constraint is also addressed by the college. The processing required for educational loans by banks is completed without hassle for the students. The Velammal Educational Trust extends indirect financial support by way of free transport, free boarding and lodging etc.

Although students with physical disability have not sought admission into the college so far, help has been extended whenever and wherever necessary including arranging for scribes, hall arrangement etc.

2.3 Teaching -Learning Process

2.3.1 How does the institution plan and organize the teaching-learning and evaluation schedules? (Academic calendar, teaching plan and evaluation blue print, etc.)

Academic calendar:

The Academic calendar prepared in consultation with the Principal and the Heads of Departments is published in the College Handbook every year. The academic calendar consists of entire academic plan for the year such as the date for the commencements of classes, total number of working days, periodic tests schedule, academic events of the college and the departments, national and local holidays.

Teaching Plan

The time–table committee of the college prepares the college time table well ahead of time. The time-table for each class is posted on the notice board on the first day of classes.

Based on the number of working days the course in-charge prepares the course plan allotting the teaching hours for each unit, mode of content delivery, evaluation processes and means of achieving the course outcomes. The teaching and evaluation methods adopted are planned to ensure that course outcomes lead to program outcomes. Topics for seminars and assignments are designed to cater to the level of advanced, average and slow learners. Curriculum gaps are filled by content beyond syllabus. The text book/s to be prescribed, and reference materials to be used are identified.

Class room teaching material is updated or prepared afresh for all the units of the course.

For lab courses, the lab manuals are updated and the lab readiness is ensured by checking/ calibrating the instruments, purchasing new equipment/ maintaining old ones, upgrading the computers if necessary etc.

The teacher is thus well prepared for handling the class(theory or lab) from day 1 of the semester.

Evaluation / Examination

The formative assessment for theory courses are carried out by three cycle tests and one model examination. Three sets of marks are uploaded in

the university website during the stipulated period and the university computes the formative assessment mark for each student out of 20. The question papers are set to tests the various cognitive levels of the student (Bloom's Taxonomy) and objective type questions are included in the pattern.

A detailed scheme of evaluation is prepared prior to valuation of answer scripts for every test and the answer books are evaluated as per the scheme. Complete transparency is ensured while returning the answer books to the students and the key with scheme of valuation is presented to the students.

A sample of the key and scheme of valuation is presented below:

VELAMMAL COLLEGE OF ENGINEERING AND TECHNOLOGY
Madurai – 625 009
Department of Chemistry – Engineering chemistry II
Key for Cycle test – I
Common to all first years

Part - A	**Question**	**points**	**Mark**
1.	Standard electrode potential	Definition	2
2.	Pilling Bedworth rule	PB ratio = volume of metal oxide formed/ volume of metal consumed	2
3.	Salt bridge	U –tube –sat. solution of KCl or NH_4NO_3 Fn: eliminates LJP, electrical continuity	1+1 =2
4.	Zn + H_2SO_4evolves H_2, But Ag not	E^0_{Zn} = –0.76 V (Above in the emf series) E^0_{Ag} = +0.80 V (below in the emf series)	1+1 =2
5.	Decarburization	Decrease in 'C' content in steel	2
6.	Anti skinning agent	Prevent gelling and skinning of paint Poly hydroxyl phenol	1+1=2
7.	Primary and secondary batteries	Electrode reactions not reversible, not rechargeable - I^0 battery Electrode reactions reversible, rechargeable- 2^0 battery	2*1 = 2
8.	Limitations of wind energy	Any two – noise pollution, affect migratory birds, interfere EM signals.	1+1 =2
9.	Methods of wind energy	Sky sail ,ladder mill ,kite ship ,sky wind power, briza technologies ,sequoia automation – any four	4*0.5=2
		TOTAL	**=18**
Part - B	**Question**	**points**	**Mark**

10.a) i)	Nernst equation	Redoxrn: $M^{n+} + n^{e-}$ M $\Delta G = -RT \ln K + RT \ln [P]/[R]$ $\Delta G = \Delta G^0 + RT \ln [P]/[R]$ $-\Delta G = nEF$ or $-\Delta G^0 = nE^0F$ $nEF = nE^0F + RT \ln [M]/[M^{n+}]$ $E = E^0 - RT/nF \ln 1/[M^{n+}]$ $E = E^0 + RT/nF \ln [M^{n+}]$ $E = E^0 - 2.303RT/nF \log [M^{n+}]$ $E = E^0_{red} - 0.0591/n \log[M^{n+}]$ $E = E^0_{oxi} - 0.0591/n \log[M^{n+}]$ R=8.314 J/K/mole, F= 96500 coulombs T = 298K , n= No. of electrons involved	0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 1 1 4*0.5=2 =8
ii)	Application of emf series	Calculation of emf of the cell , ΔG equilibrium constant , spontanetity, oxidation or reduction, displacement of one element by other, hydrogen displacement	
10.b) i)	Electrochemical corrosion	<u>Hydrogen evolution type:</u> M above in the emf series dissolve in acidic medium &evolution of H_2 gas, Diagram, anodic rn.: Fe Fe^{2+} +2e–cathodicrn. $2H^+ + 2e^-$ H_2 <u>Absorption of oxygen:</u> Diagram, anodic rn.: Fe Fe^{2+} + 2e–cathodicrn.: ½ O_2 +$2e^-$+H_2O $2OH^-$ Net rn: Fe^{2+} +$2OH^-$ $Fe(OH)_2$	=1+1+1 +1 =1+1+1 +1 =8
ii)	Electroless nickel plating	Definition step I: pretreatment & activation of the surface Step II: plating path (coating M, reducing agent + complexing agent +buffer +optimum pH + optimum temperature) Step III: reduction $Ni^{2+} + 2e^-$ Ni Oxid. $H_2PO_2^-$+ H_2O $H_2PO_3^-$+$2H^+$+ $2e^-$ Net rn: Ni^{2+}+$H_2PO_2^-$+ H_2O Ni + $H_2PO_3^-$ +$2H^+$	1 1 6*0.5=3 1 1 1 =8

11.a) i)	Lead acid battery	<u>Construction:</u> Anode : Pb Cathode: PbO_2 Electrolyte: H_2SO_4 (density 1.30 g/ml) Diagram <u>Working:</u> Discharging: Anode $Pb_{(S)} + SO_4^{2-} \longrightarrow PbSO_{4(S)} + 2e^-$ Cathode $PbO_{2(S)} + 4H^+ + SO_4^{2-} + 2e^- PbSO_{4(S)} + 2H_2O$ Net rn: $Pb_{(S)} + PbO_{2(S)} + 2\ H_2SO_{4\ (aq)} \longrightarrow 2PbSO_{4(S)} + 2H_2O + E$ Charging: $2PbSO_{4(S)} + 2H_2O + E \rightarrow Pb_{(S)} + PbO_{2(S)} + 2\ H_2SO_{4\ (aq)}$ Emf : 6 – 12 V	2 1 3 1 1 =8
ii)	$H_2 – O_2$ fuel cell	Definition fuel : H_2 ,oxidizer : O_2 Electrolyte: 25%KOH or NaOH Diagram <u>Working:</u> Anode: $H_2 \longrightarrow 2H^+ + 2e^-$ $2H^+ + 2OH^- \longrightarrow 2H_2O$ $H_2 + 2OH^- \longrightarrow 2H_2O + 2e^-$ $2H_2 + 4OH^- \longrightarrow 4H_2O + 4e^-$ Cathode: $O_2 + 4e^- \longrightarrow 2O^{2-}$ $2O^{2-} + 2H_2O \longrightarrow 4OH^-$ $O_2 + 2H_2O + 4e^- \longrightarrow 4OH^-$ Net rn: $2H_2 + O_2 \longrightarrow 2H_2O$ Emf: 0.8 V – 1 V	1 1 1 2 2 0.5 0.5 =8
11.b) i)	1. impressed current cathodic protection method 2. Pourbaix diagram	1.dc current applied to opposite direction of corrosion current -terminal : metal + terminal: inert anode(graphite, platinised Ti) Back fill :mixture of gypsum , coke breeze & sodium sulphate – good electrical contact to anode diagram 2. possibility of corrosion w.r.t pH & electrode potential - Pourbaix diagram Corrosion : pH 7 E.P (-0.4V) Immunity : (- 0.8 V) –applying external current Passivity : applying positive	1 0.5 0.5 0.5+0.5 1 =4 0.5 0.5 0.5 0.5

		potential Rate of corrosion decrease – increasing pH- alkali medium Rate of corrosion increase – decreasing pH- acid medium diagram	0.5 0.5 1 =4 =8
ii)	1. Lithium battery 2. Solar cell	1. Anode : Li ,Cathode: TiS_2 , Electrolyte : polymer Anode: $Li_{(s)} \rightleftharpoons Li^+ + e^-$ Cathode: $TiS_{2(s)} + e^- TiS_2^-$ Net rn. : $Li_{(s)} + TiS_{2(s)} \rightleftharpoons Li^+ + TiS_2^-$ Emf:3 V $LiTiS_2$ 2.solar E – E.E P type semiconductor (Si doped with B) n type semiconductor (Si doped with B) e^- from valence bond- promoted to conduction band-cross p-n junction to n type semiconductor – potential difference –flow of e^- - e^- flow from n layer to p layer – current generated diagram	(0.5)*3 =1.5 1 1 1 0.5 =4 1 2 1 =4 =8
		TOTAL (either or choice)	**=32**
Objective type questions			

S.NO	Question NO.	Answer
1.	1	D
2.	2	A
3.	3	B
4.	4	D
5.	5	D
6.	6	C
7.	7	C
8.	8	C
9.	9	C
10.	10	A

The end of semester summative examination is conducted by the university and the marks obtained out of 100 are converted to 80. The formative and the summative marks are added up for declaration of result.

The formative assessment of lab courses is also almost uniform across the departments. Each experiment is valued for the procedure, data collection, result obtained, graphical representation if any, viva voce and record writing. A model Lab exam is conducted at the end of the semester and

the marks obtained are included for calculation of internal assessment marks. All the marks scored are averaged and computed out of 20 and uploaded in the University website as the formative assessment marks.

The summative examination for lab courses is also scheduled and conducted by the University with an external examiner in attendance. The marks are uploaded at the end of the examination and the University puts together the formative and summative marks and declares the results.

The final year projects are internally evaluated by the guide for literature survey carried out by the student, reviews presented and the final outcome. The external examiner assesses through a final presentation and viva-voce.

The checks and balances are introduced by the HoD who verifies the question paper and the valuation of answer scripts by random choice.

2.3.2 How does IQAC contribute to improve the teaching–learning process?

The Institution is in the process of establishing IQAC cell. However the college has evolved its own quality assurance mechanisms at various levels of teaching –learning process with various committees in place such as

Assessment committee (Course file maintenance)

Class Committee

Student feedback

Program Assessment Committee and

Department Advisory Committee to monitor and better the teaching learning process.

2.3.3 How is the learning made more student-centric? Give details on the support structures and systems available for teachers to develop skills like interactive learning, collaborative learning and independent learning among the students?

Students are the first and foremost stakeholders of the college. If the needs of this level are met, it ensures that the other dependent, subsequent stakeholders' expectations are also met. The Vision and Mission of the college have been scripted with this notion.

Hence the teaching-learning process is by default is student centric and the institution has adapted to Outcome Based Education (OBE). OBE is recognized as a modern method for teaching-learning process. India is one of the countries that continue to be a signatory in the Washington Accord for accepting undergraduate engineering degrees that were obtained though OBE methods. The United Kingdom and the United States are also signatories as of 2014.

For OBE to be successful, it is imperative for teachers to comprehend the advantages of OBE and develop / modify resources. The college has mooted initiatives to successfully implement OBE.

Firstly, the outcomes of learning are – a student should be able to remember, understand and apply the knowledge acquired; use the knowledge to analyze and evaluate a problem and create a feasible innovative solution to the problem.

Secondly, the learning activities should be directed towards the outcomes and

Thirdly the assessment tools should be well drafted to identify the

outcomes.

The **support structure and system** provided by the institution for teachers to develop different types of learning skills in students are listed:

- Well-equipped digitized library with access to e-journal and NPTEL learning resources and direct access to the library resources through OPAC for **independent learning**
- Infrastructure for ICT enabled teaching and learning for **interactive learning**
- Well-resourced laboratories that enhance the application, evaluation, and analytical skills of the student along with augmenting the psychomotor skills of the learner due to **independent and collaborative learning.**
- Air conditioned seminar halls with the precise ambience for conducting seminars, workshops and guest lectures for **interactive learning.**
- Ample computer facility with 32MBps internet connection and wi-fi connectivity for fast and precise access of information for **independent and interactive learning**
- Software and equipment for planning and executing project work for **collaborative learning**
- Facilitating internship in industries and companies for **collaborative learning**
- Adapting varied teaching methodologies like flipped class, think-share etc. to develop **independent and interactive learning.**
- Guest lectures and interactive sessions with successful alumni for **interactive learning**
- Motivation to appear for qualifying examinations like GATE and GRE by **independent learning**

Thus the teachers take more of a facilitator role allowing students to develop on their own.

2.3.4 How does the institution nurture critical thinking, creativity and scientific temper among the students to transform them in to life-long learners and innovators?

The institution spares no effort in encouraging the students to develop critical and creative thinking and inculcate scientific temper in their approaches to novel ideas and situations.

To cite a few,

- Facilitating the students to prepare for national level paper presentation and project contests
- Providing seed money for prototype modeling
- Encouraging students to carryout mini projects every semester
- Helping the students critically analyze the outcome of the projects
- Designing and conducting experiments not prescribed by the syllabus
- Assigning topics for seminars and assignments that necessitate creativity in preparation and delivery.
- Involving students in teaching learning process through role plays, debates, discussions etc.
- Training the students in answering objective type questions to develop quick and allied thinking

The college recognizes students of higher ability by awarding cash prizes for class toppers. University rank holders, prize winners in national level

competitions and also for students with 100% attendance appreciating their regularity.

2.3.5 What are the technologies and facilities available and used by the faculty for effective teaching? Eg: Virtual laboratories, e-learning - resources from National Program on Technology Enhanced Learning (NPTEL) and National Mission on Education through Information and Communication Technology (NME-ICT), open educational resources, mobile education, etc.

Emphasizing on effective teaching in order to ensure effective learning, the college makes provision for resources to be available for the teachers.

The college has a well-stocked automated library with Online Public Access Catalogue (OPAC)

Each teacher can at a time borrow eight books in his/her name and use the OPAC for personal transaction information.

Through M/S Global information Systems, New Delhi, IEEE journals can be accessed as well as e-journal package of American Society for Mechanical Engineers (ASME)

E- books of McGraw –Hill publishers are also assessable.

OPAC also serves as quasi-federated search engine for data bases.

Internet and wi-fi facilities are available to all teachers for quick access to web sites.

Library users can search and download the relevant information / resources through INFLIBNET/IUC facilities available in library.

NPTEL learning resources and videos are available for all branches of study and the teachers use the same extensively as teaching resources.

The institution is recognized as a remote center to interact with IIT-Bombay faculty, in which faculty and Students can ask questions through an Ask -A -Question online forum. These sessions are held once a week on specified topics which are intimated to the faculty for effective interaction.

Teachers are encouraged to attend and participate in seminars and conferences to enhance their knowledge – the management subsidizes the travel expenses and the registration fee.

Faculty also undergo special training in companies like CISCO which enables the department to offer value- added courses to the students.

The institution in addition, strongly promotes the use of Open source software among the faculty and students.

2.3.6 How are the students and faculty exposed to advanced level of knowledge and skills (blended learning, expert lectures, seminars, workshops etc.)?

The yearly calendar of the college is packed with programs planned by the departments to expose the faculty and students to the current topics of interest and recent advances in the field of study.

1. Eminent academicians and industrialists are invited to deliver lectures on topics for which expertise will enrich the learning experience and interact with students and faculty.
2. Seminars are organized at the National / regional level to pool the best brains to discuss and disseminate knowledge in special topics relevant to the branch of study.
3. Students are encouraged to participate and present papers in symposia and seminars to motivate them in self-study and

communication skills.

4. Enrollment in project contests and design competitions ensures that the students develop application skills and creativity. The extent of development is indicated by the laurels regularly won by the students.
5. Value added courses are designed and offered to enhance the knowledge level of the students.
6. Registering for Internships and summer training programs is facilitated for the students which help them gain hands on training / real time experience.
7. Faculty are deputed / encouraged to participate in seminars and conferences and present papers of quality.
8. Faculty are also delegated to undergo Faculty Development Programs in the respective disciplines conducted by the Anna University / other authenticated institutions.
9. Collaboration / membership in professional bodies and societies like CSI, ISTE, ENFUSE, SAE and ACM, paves way for organizing technical activities and lectures in which students and faculty participate.

Velammal College of Engineering and Technology has recently been authorized as a Test Centre of Pearson VUE to conduct various certification examinations. MoU has been signed between VCET and Pearson on 01-June-2015. On line examinations will be conducted through VUE support system. Conduct of tests on CompTIA, CISCO, Oracle, HP, VMware, and C++ is authorized and certificates for successful candidates will be issued by the software providers. The department of Computer Science Engineering will be coordinating the program and students will be encouraged to acquire as many certificates as possible during their tenure in the college.

2.3.7 Detail (process and the number of students benefitted) on the academic, personal and psycho-social support and guidance services (professional counseling / mentoring / academic advise) provided to students?

The college has in place several support systems to lend guidance to the students.

Each class is assigned s class in-charge who keeps track of the academic progress of the students form the first year to the final year from attendance to the overall grades obtained.

Similarly, a set of 20 students is assigned under the guidance of a mentor. The following are the

Responsibilities of Mentors

- Maintenance of academic performance record of each mentee and apprising the parent / guardian of the academic progress of the student after every assessment.
- Ensure the regularity of the student.
- Keep track of the co-curricular and extra-curricular activities of the student.
- Identify personal issues of a the mentee if any, that might interfere with the academic life of the student and resolve the same with the help of external counselor if needed.

- Coordinate with the class in-charge and the HoD to ensure the progress of the mentee in the right direction.

2.3.8 Provide details of innovative teaching approaches/methods adopted by the faculty during the last four years? What are the efforts made by the institution to encourage the faculty to adopt new and innovative approaches and the impact of such innovative practices on student learning?

Aligning with the mission statement of the college - to impart comprehensive, innovative and value based education – teachers adopt different teaching techniques to instill in the minds of the students interest and motivation in the learning process.

Teachers have been exposed to the Bloom's taxonomical levels of learning and the concepts of outcome based education and accordingly plan their teaching methods based the content of each unit of the course handled.

The Management, realizing the need for elevating the teachers' aptitude, arranges enrichment programs in teaching-learning processincluding WIPRO Mission 10Xprogram in 2007 and 2010 on innovative and outcome based teaching methods.

Following are the samples for such practices adopted by the faculty membersto impart knowledge at various levels of learning.

Bloom's Levels		Content Delivery Methods	Teaching aids
K1	Remember	1. Lecture with Discussion 2. Lecture with Illustration 3. Lecture with Animated Videos	1. Black Board 2. PPT 3. OHP 4. Videos 5. Models 6. Lab Visits 7. Assignments 8. Seminars 9. Quiz
K2	Understand	1. Lecture with Discussion. 2.Lecture with Demonstration	
K3	Apply	1. Group Discussion 2. Role Play 3. Polls	
K4	Analyze	1. Think Pair Share 2. Lab Experiment	
K5	Investigate	1. Case Studies 2. Tutorial Classes 3. Debate	
K6	Create	1. Mini Projects 2. Final year Projects	

The impact of practicing such teaching methods is reflected on students'

- Performance in the university examinations and number of university ranks
- Clearing qualifying tests in placement processes
- acquiring internship opportunities in reputed companies / industries.
- undertaking and completing innovative projects
- participation in and winning national Level project contest etc.

2.3.9 How are library resources used to augment the teaching-learning process?

Library:

The college avows an automated library with 18,401 volumes of books on different disciplines with 8224 titles, with separate section for International and National periodicals.

The followings Library facilities are available to staff and students

- Digital library with IEEE online journals and Conference proceedings,
- NPTEL courses of IITS
- 1520 compact disks on different subjects.
- Internet facility
- Electronic Journal Resources, Video Courses, Web Sources
- Audio Visual facility
- Photocopying facility
- Document Scanning facility
- On-line Public Access Catalogue (OPAC) facility is also available to check the availability of the resources in the library from their desk.

Each teacher can borrow eight books at a time for reference and preparation of teaching material.

NPTEL resources including videos are made available for teachers to enhance the knowledge disseminated.

Students can access the library beyond the working hours to prepare for seminars/ assignments.

Provision is also made in the time table for every class – one hour per week – to help students return / renew the books borrowed against their credit of six books per student.

Assistance is provided to students to access e-journals and on line journals.

All the resources are effectively used for imparting and acquiring knowledge.

2.3.10 Does the institution face any challenge in completing the curriculum within the planned time frame and calendar? If 'yes', elaborate on the challenges encountered and the institutional approaches to overcome these.

Although the affiliating university prescribes the first and the last working day for a semester, the college has the autonomy to plan the number of working days per semester. The college plans its academic calendar well ahead of time and ensures that there is sufficient number of working days to cover the syllabus and to carry out the evaluation process.

The number of working days per semester is always over and above the days stipulated by the University to include the extra improvement classes for the slow learners and model examinations for the lab and theory courses.

Teachers keep a record of the effective utilization of the teaching hours and the process is regularly monitored by the HoDs and also by the Principal.

Hence the institution has not faced any challenge in completing the curriculum on time.

2.3.11. How does the institute monitor and evaluate the quality of teaching-learning?

Starting from the allocation of subjects and planning the course delivery with a course file maintained and updated, the HoD and the team of faculty members work as a team to offer the best of efforts to the students.

Each course delivery is designed to meet a set of outcomes which on

realization leads to the attainment of the program outcomes.

Any gap in curriculum that hinders the attainment of outcomes is identified and bridged by designing and offering value added courses and by outlining content beyond syllabi for relevant courses.

The assessment processes are meticulously planned and executed to test the different levels of cognition.

The institution has in place a set of mechanisms by which there is continuous monitoring of teaching –learning process:

1. Each class is represented by a class committee and the class committee meetings are conducted thrice a semester. The convener of the class committee obtains information regarding the coverage of portions, teaching methods adopted, evaluation carried out etc. along with the availability of books and related materials; the conduct of lab courses and equipment available. The feedback obtained is followd up the course teachers for modifying/improving teaching strategies.
2. Direct online feedback from all students is obtained each class twice a semester. The analysis of feedback is used by the course teachers for performance improvement.
3. The HoD and / or the Principal audit, at random, the classes thereby obtaining a real time feedback on the teaching process.
4. Self – appraisal by faulty and appraisal by HoD at the end of each year also are taken into account for planning improvement strategies for teaching.
5. The learner is assessed formally and continuously by slip tests, cycle tests and at the end of the semester by a model examination. Informal assessments comprise of written assignments and seminars

2.4 Teacher Quality

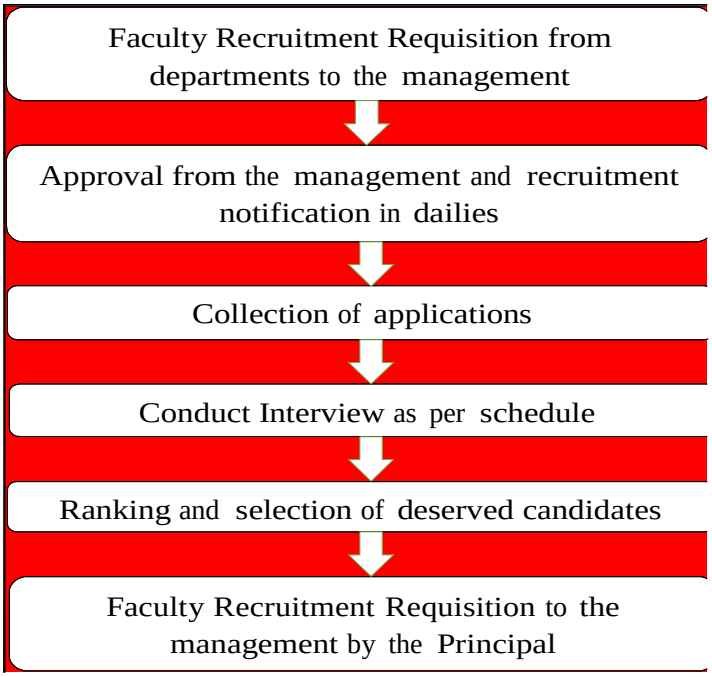
2.4.1 Provide the following details and elaborate on the strategies adopted by the college in planning and management (recruitment and retention) of its human resource (qualified and competent teachers) to meet the changing requirements of the curriculum.

Dept	Highest Qualification	Professor		Associate Professor		Assistant Professor		Total
		Male	Female	Male	Female	Male	Female	
CSE	Ph.D.	1	5					6
	M.E					7	12	19
	B.E					1	1	2
CIVIL	Ph.D.		1	1		1		3
	M.E					4	4	8
	B.E							
ECE	Ph.D.	1	3	1	1	-	-	6
	M.E	-	-	-	-	9	9	18
	B.E	-	-	-	-	-	-	-
EEE	Ph.D.		3		1			4
	M.E					8	8	16
	B.E							
MECH	Ph.D.	3	1	1	--	--	--	5

	M.E			2	--	15	--	17
	B.E							NIL
IT	Ph.D.	1	-	-	-	-	1	2
	M.E	-	-	-	-	4	7	11
	B.E	-	-	-	-	-	-	-
English	Ph.D.	1				1	2	4
	M.Phil						3	3
	PG							
Maths	Ph.D.	--	1	--	--	2	1	4
	M.Phil	--	--	--	--	2	5	7
	PG	--	--	--	--	--	--	--
Physics	Ph.D.	1	--	--	--	--	1	2
	M.Phil	--	--	--	--	2	2	4
	PG	--	--	--	--	1		1
Chemistry	Ph.D.		1				1	2
	M.Phil					2	5	7
	PG							

The Teacher- Student ratio is as per AICTE norms (1:15).
Number of teachers on roll: 170
No.ofPh.D holders:42
No.of faculty pursuing Ph.D:45

Recruitment of faculty: (Flow chart)



- The college recruits and retains the faculty who are competent, qualified, and experienced in their respective field of specialization.
- The college advertises the recruitment of the faculty in the state and national level newspapers and conducts interviews by inviting the outside subject experts and internal senior faculty. AICTE and University guidelines are followed for recruitment of faculty

Faculty retention:

The following measures are adopted by the college to ensure that faculty are motivated to continue their services:

- Faculty Salary Scale is fixed as perpay commission.
- HRA, EPF & health care benefits are provided to the faculty.
- Financial incentives are provided to the professors with Ph.D
- Faculty pursuing Ph.D are given allowances as encouragement.
- Cash award of 5000/- is provided to each faculty with 100% attendance and a gold coin for 5 years of continuous service in the institution.
- A cash award of 2000/- & 1000/- is given to the faculty who produce 100% and 95% & above results in the end of semester university examinations for their respective courses.
- Fast track promotions, special increments etc. for deserving faculty
- Concession in school fees for children of faculty, admitted into any of the Velammal group of schools and free education if the faculty has served five or more years.
- Free transport facility.
- Free Hostel Accommodation for faculty who require the same within the campus.
- 50% reimbursement towards travel and registration fee for paper presentation / participation in national and international level seminars.

2.4.2 How does the institution cope with the growing demand/ scarcity of qualified senior faculty to teach new programs/ modern areas (emerging areas) of study being introduced (Biotechnology, IT, Bioinformatics etc.)? Provide details on the efforts made by the institution in this direction and the outcome during the last three years.

The institution has from its inception has appointed experienced teachers as HoDs and professors to not only assure quality teaching but also to ensure right administration. Almost all of these senior faculties have been retained till date.

While recruiting new faculty for IT, CSE and other departments, applicants with experience in reputed institutions are given weightage over fresh graduates.

While shortlisting the candidates for technical interview tests and interviews, candidates with required specialization are given weightage over the others depending on the need of the departments.

Advertisements in dailies attract a number of applications for the vacant / additional posts and hence the college has a reasonable choice in the selection of the candidates.

The appointment of teachers in the last three years had followed the same pattern

2.4.3 Providing details on staff development programs during the last four years elaborate on the strategies adopted by the institution in enhancing the teacher quality.

a) Nomination to staff development programs

Academic Staff	Number of Faculty nominated

Development Programs	2010-2011	2011-2012	2012-2013	2013-2014	2014 – 2015
Staff training conducted by theCollege	**11**	**72**	**75**	**31**	**22**
Staff training conducted by University /Other Colleges	**28**	**39**	**45**	**65**	**41**

b)Faculty Training programs organized by the institution to empower and enable the use of newest tools and technology for improved teaching-learning

- **Teaching- learning methods/approaches:**

i. Training from WIPRO Mission 10X program in 2007 and 2010 on teaching methodologies to suit Bloom's taxonomical levels of learning

ii. Workshop on effective use of the software MATLAB

- **Handling new curriculum:**

As and when the parent Anna University brings revises the syllabi for its affiliated colleges, the University conducts Faculty Development Programs (FDP) in various disciplines to refresh / orient faculty in the current trends of the syllabus and also update them in delivering the course content. The faculty of the college are deputed / voluntarily participate in such programs and equip themselves.

The college also promotes conduct of FDPs in various disciplines and the departments regularly organize such programs inviting eminent faculty. The experienced faculty of the college also share their expertise with faculty both inside and outside the college.

It is also a normal practice for faculty to attend seminars/ conferences/ workshops organized by various institutions to presnt papers and to update their knowledge in their area of interest.

- **Content/knowledge management:**

Teachers and students are assisted in the use of digital library and accessing e- journals

The Department of CSE has a digital library of freely available e- books which have been categorized and stored. Students are encouraged to access these books from their labs for effective learning.

All most all the teachers have basic knowledge in managing data relevant to their classes in terms of marks, course material, class delivery materials etc. and where help is required, it is extended by the senior faculty or by the CSE/ IT departments when needed.

Teachers are encouraged to share their expertise via guest lectures with students of their own departments and with students of other discipline as well.

Students of CSE department are taught and teachers self- train in the use of open source software for knowledge acquisition and sharing.

Teachers are encouraged to post on line, course material and lecture notes for any- time and easy access by students. To cite an example, Dr. G. Manikandan, Head of the Mechanical Engineering department, posts regularly in his blog, discussions on TQM and Engineering Graphics to be viewed by all.

- **Selection, development and use of enrichment materials:**

The HoD and the senior faculty of the department informally train the junior staff in the selection of books of recent editions and books written by well-renowned authors. They are also made aware of and helped to use NPTEL videos and materials available in the library.

- **Assessment**:

Teachers are exposed to various tools for formal and informal assessment of students' performance level

Almost all teachers get informally trained in the process of assessment of the teaching – learning process by being nominated as chair persons of class committees.

Staff also assess themselves (Self- appraisal) at the end of each year not only with respect to teaching – learning process but also in terms of research outputs.

- **Cross cutting issues:**

Faculty serve in various clubs and cells such as Eco Club, Gender Cell and Grievance Redressal Cell and thus become aware of and train themselves to handle cross-cutting issues.

- **Audio Visual Aids/multimedia:**

As most of the class rooms are equipped with LCD Projector is has become a routine practice for teachers to use AV aids including NPTEL videos for enhancing the teaching –learning process.

- **Open Educational Resources (OERs):**

The college library has a digital section where e- journals can be accessed by the students and faculty.

Teachers, specially of computer Science and related departments train themselves and train students in identifying and using open source software relevant to these area of study. For example faculty down load and use free software available Computer Aided Designing and encourage students also to practice with the software although licensed software is installed and used in laboratories.

i) Teaching learning material development, selection and use:

The teachers are required to prepare their teaching materials ahead of the semester start and the HoDs also ascertain that relevant upto date information has been included in the material. Teachers also receive help, if needed, in the library for assessing information in e- journals or downloading subscribed journals.

c)Percentage of faculty

The following table shows the year wise data on the percentage of faculty who have acted ad resource persona/ presented papers in National and International conferences / seminars organized by external agencies:

Faculty Participation	**Percentage**				
	2010-2011	**2011-2012**	**2012-2013**	**2013-2014**	**2014 – 2015**
a) As Resource Persons in Workshops /Seminars / Conferences	22.09	25.43	15.44	20.68	15.89
b) In Paper presentation in Workshops / Seminars/Conferences	52.32	52.63	69.11	70.34	38.41

Many faculty also participate in seminars and conferences in order to update knowledge, to establish contact with reputed institutions & laboratories and to gain cognizance of reputed and leading scientists in relevant areas of interest.

2.4.4 What policies/systems are in place to recharge teachers?(eg: providing research grants, study leave, support for research and academic publications, teaching experience in other national institutions and specialized programs, industrial engagement etc.)

The college always lends support for any endeavor that empowers teachers.

1. Teachers are encouraged to apply for projects funded by Governmental Agencies such as DST, DRDO, ISRP, CSIR etc. When a project is selected and the Principal Investigator is called for a presentation anywhere in India, the TA and DA are borne by the college.
2. The travel, boarding and lodging expenses are also provided by the college for the principal Investigators to visit the offices funding agencies (usually in New Delhi) for follow up.
3. Expenses incurred towards Paper presentations in national / internal seminars are advanced /reimbursed to the faculty to the tune of 50%.
4. The absence from the college for all the above is considered as on – duty for the faculty.
5. Seed money is provided for the Principal Investigator for preliminary work to be undertaken and / or for proto-type preparation.
6. The college when recruiting a new faculty takes into account the years of experience accrued and the reputation of the institution in which the faculty had gained experience while designating the post and offers a salary package befitting the faculty.
7. Experience in Industry / software companies prior to the teaching assignment is given due recognition in terms of designation or salary offered.
8. Teachers pursuing Ph.D. are given monthly incentive of ` 3000/- and one day a month as on- duty in order to facilitate and motivate the teachers towards quality research.

DEPT	Number of faculty getting incentives for pursuing Ph.D					Number of faculty getting incentives for acquiring Ph.D				
	2010 - 2011	2011 - 2012	2012 - 2013	2013 - 2014	2014 - 2015	2010 - 2011	2011 - 2012	2012 - 2013	2013 - 2014	2014 - 2015
Civil	-	-	-	-	-	1	1	1	1	1
CSE	4	5	6	5	3	3	2	2	3	4
ECE	-	9	9	8	6	2	2	3	3	5
EEE	1	3	4	5	5	1	1	4	4	4
IT	2	4	4	3	2	2	-	1	-	1
MECH	2	1	1	1	-	1	1	-	1	-
English	2	3	1	1	1	2	2	3	3	4
Physics	Nil	Nil	Nil	Nil	Nil	1	1	1	Nil	Nil
Chemistry	-	1	1	1	1	1	2	2	2	1
Maths	3	2	2	2	2	2	3	2	3	3

2.4.5Give the number of faculty who received awards/recognition at the state, national and international level for excellence in teaching during the last four years. Enunciate how the institutional culture and environment contributed to such performance/achievement of the faculty.

The Institution provides autonomy to teachers to plan and execute the teaching methodologies with well- stocked library, e-resources, fast internet services along with financial support and encouragement for pursuing research. These have naturally paved way for faculty to outperform.

Following are the details of the awards won by our faculty

- Dr.N.Suresh Kumar, Principal, Velammal College of Engineering and Technology, Madurai, TamilNadu-Eminent Engineer Award from the Institution of Engineers (India), Madurai Local Centre, Madurai on 15.9.2012.
- Mr.J.Karthikeyan– Assistant Professor - Department of EEE-Receiving Best ISTE Chapter Secretary Award on 15.9.2012 at Maharaja Engineering College, Avinashi,
- Mr.J.Karthikeyan, Assistant Professor–"IEI Young Engineers Award - 2012" from Shri. K.C. Venugopal, Honorable Minister of State for Power, Govt. of India, on 6.12.2012 at Trivandrum.
- Mrs. Rachel BhuvaneswariJeyachandran, Assistant Professor of Department of English, Velammal College of Engineering and Technology, Madurai, Tamil Nadu --Young Educator and Researcher award, 5th Teachers Day Awards and Celebrations-2014,National Foundation for Entrepreneurship Development (NFED)

2.4.6 Has the institution introduced evaluation of teachers by the students and external Peers? If yes, how is the evaluation used for improving the quality of the teaching-learning process?

Yes, the institution has introduced more than one process by which students can evaluate the performance of teachers.

(i) Through class committee meetings held thrice a semester – the committee comprising of four members from the class with the chairperson from a department other than the one to which students belong.

(ii) Twice a semester on-line feed-back from every student of the class on the various aspects of the teaching- learning process

Based on the inputs received from the above feed-backs the performance level of the teacher is enhanced through self-training and through formal programs.

The online student feedback entry form is sampled below:

No.	The faculty / is	**Excellent**	**Very Good**	**Good**	**Satisfactory**	**Needs improvement**
1	On time to class	○	○	○	○	○
2	Well prepared for the class	○	○	○	○	○
3	Communicates only in English	○	○	○	○	○
4	Explains the subject clearly	○	○	○	○	○
5	Integrates theoretical course concepts with real-world applications	○	○	○	○	○
6	Completes the assigned portions on time	○	○	○	○	○
7	Relates well with the students and encourages interaction	○	○	○	○	○
8	Fair in examination and evaluation	○	○	○	○	○
9	Returns the corrected answer sheets within two days after the date of exams	○	○	○	○	○
10	Available for interactions after the class hours	○	○	○	○	○
11	Has been able to increase my knowledge of the subject	○	○	○	○	○
12	The assignments, seminars, tests and exams are relevant.	○	○	○	○	○
13	Specifies the importance of the topic in Placement, GATE exams, Competitive exams, Current affairs, etc.,	○	○	○	○	○
14	Makes the classroom very lively and interesting.	○	○	○	○	○
15	Overall performance is	○	○	○	○	○

Internal peers (Principal and HoD) also evaluate the faculty performance. The following is the format

VELAMMAL COLLEGE OF ENGINEERING AND TECHNOLOGY, MADURAI
Performance Evaluation for Teaching Staff for Academic Year 2014-15

Name of the Dept: Name of Staff: Desig.& Qualification: Normalized Experience:

Parameters	Description of parameters and Targets	Total Marks (100)	ODD Semester pass % in theory			Even Semester pass % in theory			Marks		Remarks	Eligibility for promotion /Retention
			Subject : 1	Subject : 2	Subject :3	Subject : 1	Subject : 2	Subject :3	Self	HOD	Principal	
(1) Academics (50)	Cycle Test - I Pass Percentage	20										For AP-III Parameter (1) 45/50
	Cycle Test - II Pass Percentage											
	Cycle Test - III Pass Percentage											
	Model Exam - Pass Percentage											
	University Exam Pass Percentage / Current year (odd Semester) & Previous year (Even Semester)	25										
	Regularity (95% - 100%)	5										
	Delivery of subject (to be assessed by HOD with proof)	5										
(2) Continuous Learning (10)	(A) Two publications/year in journals with Impact factor 3.0 and above.(Or) (B) 1 PDP per year (not less than one week) (Or) (C) Min. 2 R&D students project awards	10										For AP-II Parameter (1+2) 54/60
(3) Research & Development (40)	(A) Funded Projects for current Academic Year Or ongoing projects For AP - I - Either PI or Co - PI For Asso. Prof. - As Principal Investigator. For professor - As Principal Investigator.	25										For AP-I Parameter (1+2A+3A) 76.5/85 For Asso. Prof. Parameter (1+2A+3A+3B) 81/90 For professor Parameter (1+2A+3A+3B+3C) 90/100
	(B) Consultancy (Rs. 1 Lakh /per year)	5										
	(C) IPR (Patent or Books)	10										

Requirements for promotion: (Minimum 90% of the total marks specified for each level).

- AP-III – 45 out of 50 marks (Academics):From AP-III to AP-II - 54 out of 60 marks (Academics 50 + Cont. Learning 10):From AP-II to AP-I - 76.5 out of 85 marks(Academics 50 + Cont. Learning 10+ funded projects 25):From AP – I to Associate 81 out of 90 (Academics 50 + Cont. Learning 10+ funded projects 25+consultancy 5) From Associate to Professor 90 out of 100 marks (Academics 50 + Cont. Learning 10+ funded projects 25+consultancy 5 + IPR 10).

Distribution of Marks:

Percentage of result produced	Cycle test/ Model Exam	University Exam	Faculty Regularity	
	Reward Marks		Percentage	Marks
90-94	3	10	Above 95	1
			Above 96	2
			Above 97	3
95-100	5	20	Above 98	4
			Above 99	5

Supporting Parameters (to be evaluated by H.O.D and Principal incase of more than one faculty contend for one position):

Parameters	**Marks**
Course File	1
Lab manual	1

Innovative assignment	1
Class room handling	1
Feedback from students	1
HOD's Confidential report	1
Counseling / Mentoring	1
Placement initiatives	1
College level co ordination	1
Image Building (outside participation / community reach)	1
Total	10

Velammal College of Engineering and Technology, Madurai
HR Policy for Promotion

- Promotion on the basis of "Performance Based Evaluation".
- Performance will be evaluated objectively against standards and targets.
- Evaluation will be conducted every year.
- Evaluation for promotion from entry level to next level will be considered only after two years of service at the entry level, taking into account of the performance in retrospect for the previous years. That is every year one has to perform in accordance with target fixed for that level.
- Minimum requirement for promotion is 90% of the total marks specified for each level.
- If one is capable of achieving the targets fixed for higher cadre, he/she can claim for promotion to that level.

If one does not opt for promotion to next level he or she has to meet the target specified for the present level every year to continue in the service.

The evaluation processes are consolidated to assess the level of the teacher and as indicated above, the award of promotions and incentives are based on the performance level of the teacher. These act as a motivation for the teachers to constantly improve their performance level.

2.5 Evaluation Process and Reforms

2.5.1 How does the institution ensure that the stake holders of the institution especially students and faculty are aware of the evaluation processes?

The overall evaluation process is that prescribed by the affiliating Anna University (AU). The ratio of formative internal assessment to the summative assessment is 20:80. Three sets of internal assessment marks have to submitted on line to the University at an interval of one month through the

semester.

This information is disseminated to the stake holders in many ways; The information is given to the freshers and their parents on the Freshers' Day at the beginning of the first year of study. The information is also printed in the college hand book for ready reference. The same information is also posted in the Anna University web portal which can be accessed by all.

Anna University posts information on when the internal assessments marks have to be uploaded in the University web site and the dates are strictly adhered to. Individual student view his/ her formative assessment marks by directly accessing the web portal.

The Controller of examinations of the college schedules the formative test periods and these are informed to faculty and students well ahead through bulletin boards and circulars. The format of question papers and the durationof the tests are also informed by the course teachers.

After valuation, the students are informed of the detailed scheme of valuation while receiving the answer scripts ensuring transparency. The marks are also displayed in the department notice boards along with an accolade chart.

The marks obtained by their wards are communicated to the parents through the Academic Performance record and through SMS when found necessary.

2.5.2 What are the major evaluation reforms of the university that he institution has adopted and what are there forms initiated by the institution on its own?

The college, being an affiliated institution, embraces the evaluation reforms brought in by the university, for the summative evaluation.

The university has in the past two years has ensured that the internal assessment marks are uploaded in the University website at regular intervals – the website automatically becomes inaccessible beyond a certain period of time.

With respect to the internal assessment process, the college has adopted its own procedure:

Four internal assessment tests – three cycle tests at intervals of three weeks to four weeks and an end of semester model examination.

Some of the positive changes brought in by the colleges are (i) encouraging teachers to frame the question papers to include questions that will test the various levels of knowledge; for example GATE examination questions ii) introducing objective type questions (time bound answering) - mainly multiple choice- asa part of the assessment process.

As far as the lab courses are concerned, every experiment carried out by the student is marked and taken into account for internal assessment along with viva voce marks. Each discipline also formulates its own components of internal assessment based on the nature of the lab course.

2.5.3 How does the institution ensure effective implementation of the evaluation reforms of the university and those initiated by the institution on its own?

The norms stipulated by the university, for the conduct of end of semester summative examinations are strictly adhered to by the college. Also, the examination Cell of the college facilitates the completion of procedures for revaluation of answer scripts for the students who apply for the same.

The internal assessment tests are centrally conducted as per the schedule announced in advance. The HoDs ensure that the teachers set the questions including objective type questions, to test the various levels of knowledge levels.

To ensure proper conduct of formative tests, two invigilators are assigned to each hall. To make the process doubly sure, teachers submit two sets of question papers to the exam cell and either one of those is used for the conduct of tests.

HoDs also do a random check of evaluated answer scripts to ascertain whether the teacher has marked according to the detailed scheme of valuation.

For lab courses, end of semester model examination is conducted

2.5.4 Provide details on the formative and summative assessment approaches adopted to measure student achievement. Citea few examples which have positively impacted the system.

The summative assessment is carried out by the affiliating university and the college has no direct say in the process.

The formative assessment comprises of periodical internal (cycle) tests and the end of semester model examination for theory and continuous assessment for the lab courses.

The periodical cycle tests assure continuous learning by the student and the model exam serves as a prelude to the university end of semester examination.

Continuous assessment of lab courses guarantees that students cary out each experiment diligently and records the work. The analytical skills of the students are thereby enhanced.

2.5.5 Detail on the significant improvements made in ensuring rigor and transparency in the internal assessment during the last four years and weightages assigned for the overall development of students(weightage for behavioral aspects, independent learning, communications killsetc.

The following procedures are adopted **t**o ensure rigor in the conduct of internal assessment tests:

a. A centralized schedule is prepared so that all classes take up the internal assessment tests at the same time – this enables the exam cell to make hall plans in such a way as to assign invigilators to students in the ratio 1:30.
b. To ensure thoroughness and to minimize human errors, two sets of questions are set by each teacher for each test and the exam cell makes a random choice of one of these to be given for the test.
c. Objective type questions have been made a component of the cycle tests to improve the skills of the students.
d. Detailed scheme of valuation is prepared by the teacher prior to correcting the answer scripts and this forms the basis for marking the answer scripts.
e. The teacher informs the students of this scheme while giving away the answer scripts and the students have the provision to check the mode of evaluation.
f. Before distribution of answer scripts to students, the HoD ensuresthat the scripts have been evaluate based on the scheme of valuation.
g. For lab courses, the marks scored by the student for each experiment is indicated in the observation / record.

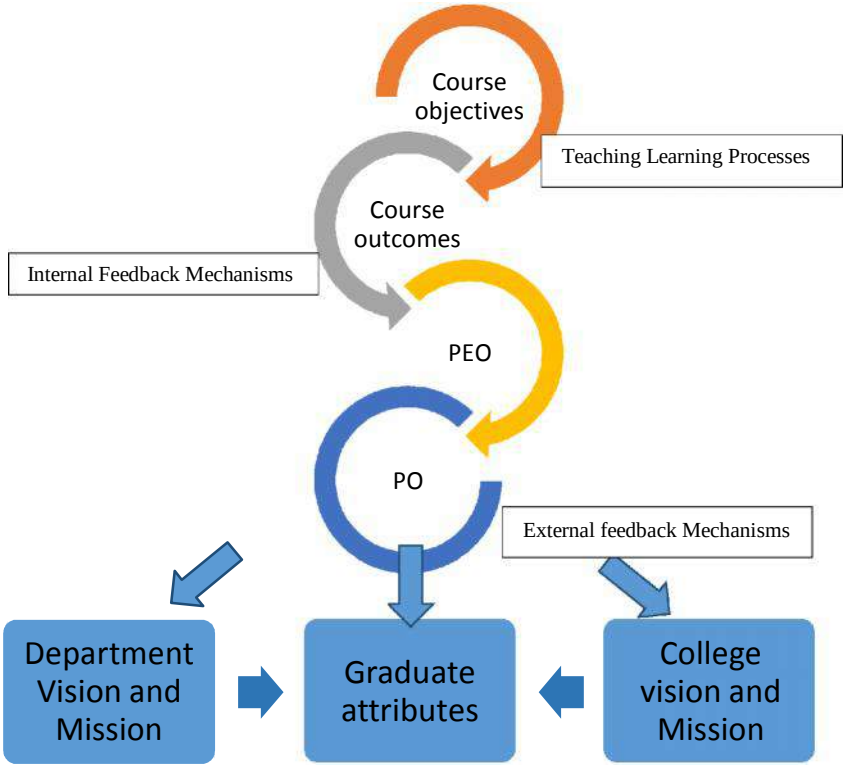
h. The communication skills and independent learning are tested by viva voce for laboratory courses and project presentation. The weightage allotted slightly varies across departments.

2.5.6 What are the graduates attributes specified by the college/ affiliating university? How does the college ensure the attainment of these by the students?

The Graduate Attributes specified are

1. Engineering Knowledge
2. Problem Analysis
3. Design & Development of Solution
4. Investigation of Complex Problem
5. Modern Tools Usage
6. Engineer and Society
7. Environment & Sustainability
8. Ethics
9. Individual & Team work
10. Communication
11. Project Management & Finance
12. Lifelong Learning

The college has a systematic procedure for attainment of graduate attributes. This procedure is outlined below:



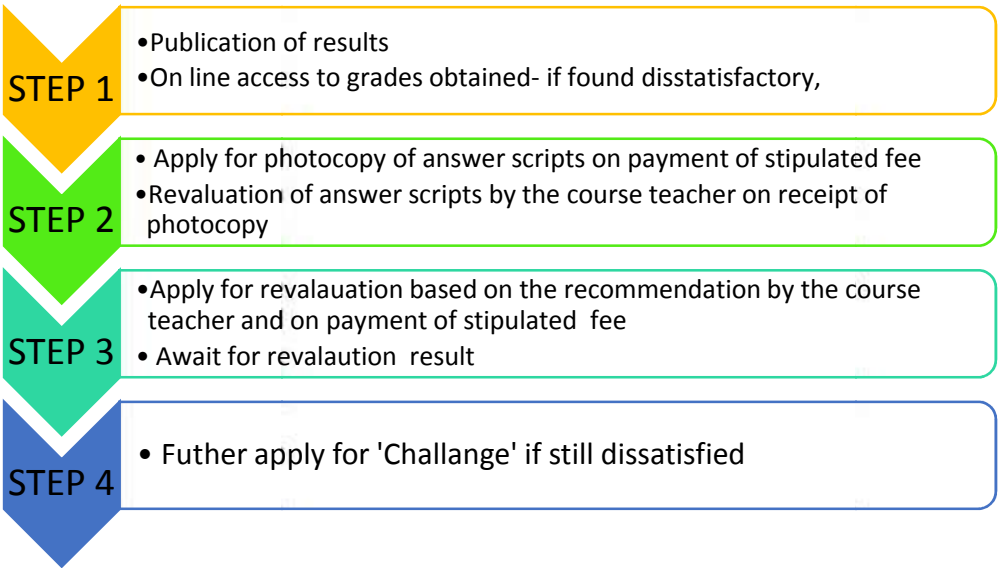
Attainment of each level of the process is monitored by appropriate mechanisms and modifications and improvements are made so that every chain of the loop progresses towards the attainment of Graduate attributes.

2.5.7 What are the mechanisms for redressal of grievances with reference to evaluation both at the college and University level?

Grievance redressal for internal Assessment:

- Students are made aware of the detailed scheme of valuation based on which the answer scripts are marked.
- In the case of any clarification asked for / discontent expressed by any student, the course teacher offers suitable explanation.
- If the student is still in need of assurance, representation can be made to the HoD of the concerned department.
- Further representation if warranted can be made to the controller of Examination and finally to the Principal.

Grievance redressalMechanism for summative Assessment by the University:
The current procedure for addressing grievances expressed by the students regarding valuation of end of semester examination scripts is as charted below:



2.6.1 Does the college have clearly stated learning outcomes? If yes' give details on how the students and staff are made aware of these?

Yes. The college has clearly defined learning outcomes which are stated in terms of the Vision, Mission and Goals of the college.

Each department also has Vision, Mission and well defined program outcomes & program specific outcomes which reiterate the learning outcomes.

Each course has well stated course objectives and course outcomes which are made available to the students along with the syllabus or by the course teacher at the beginning of the semester.

The Vision and Mission of the college are prominently displayed in strategic points in the college campus such as Front Office area, Main lobby, each floor corridor, canteen and hostels, visible for students, faculty and other visitors to read and imbibe.

These are also printed in the college hand book which is distributed to all students and faculty at the beginning of each academic year. The college website also carries this information in its Home Page.

The Vision, Mission Program Educational Objectives and the Program Outcomes of each department are put up on the department notice boards, laboratories and in the vicinity of the class rooms. These are also posted in the departmental pages of the college website.

The course teachers refresh the students' memory by recalling the vision and mission of the college and of the department; explain the course

outcomes and the program outcomes.

2.6.2 Enumerate on how the institution monitors and communicates the progress and performance of students through the duration of the course/program? Provide analysis of the students results/achievements (Program /course wise for last four years)and explain the differences if any and patterns of achievement across the programs /courses offered.

A multi-level monitoring process and communication of the progress and performance of the students is in place in the Institution:

- The course teacher keeps a record of the marks obtained by the student in each of the tests / experiments and keeps an eye on the progress or the lack of it shown by the student. Based on the performance the teacher renders extra help to the student to help him/her improve.
- The class in-charge compiles the marks obtained by the students of the class in all courses in each test and analyses the performance with respect to
    - Pass percentage for each subject
    - Number of failures in each subject
    - Comparison of pass percentages in the different subjects
    - Number of students failed in one, two, three etc. subjects
    - Overall pass percentage of the class

  The above compilation and analysis is also done for the summative examination and GPA and CGPA are calculated for each student. The details are displayed on the notice boards.
- The mentor keeps a record of the academic performance of each of his/her mentee in the Academic Performance Record and ensures that the mentee obtains signature of the parent/ guardian after each assessment.
- Communication to parents is through the Academic Performance record and through SMS as and when necessary
- Parent / guardian also is met in person by the mentor / class –in charge and the HoD to discuss ways ans means of improving the performance of the student.

Following are the data of the student achievements in university examinations

Results Analysis -UG

Semesters	ECE						2008 - 12					
	CIVIL	CSE		EEE	MECH	IT	CIVIL	CSE	ECE	EEE	MECH	IT
1	-	93	94.91	87.72	-	89.83	-	92.1	93.93	88.33	76.6	81.82
2	-	68.4	91.52	83.73	-	84.75	-	71.4	62.12	95.8	60.6	65.15
3	-	83.3	66.15	49.20	-	66.67	-	81.9	67.60	74.62	61.2	61.11
4	-	76.6	84.61	67.74	-	69.7	-	72.2	63.38	75.36	79.1	66.67
5	-	76.9	81.53	82.53	-	78.79	-	90.3	80.28	82	94.02	75
6	-	87.7	74.60	77.61	-	75.76	-	87.5	91.54	89.5	97.01	84.72
7	-	96.9	87.29	87.09	-	81.82	-	86.1	85.91	89.55	95.52	84.72
8	-	97	96.92	85.71	-	83.33	-	98.6	97.18	94.02	100	91.67

Semesters	2009 – 13						2010 - 14					
	CIVIL	CSE	ECE	EEE	MECH	IT	CIVIL	CSE	ECE	EEE	MECH	IT
1	-	94.5	67.60	90	80	79.63		91.7	89.77	96.51	91	96.3
2	-	67.3	86.11	87	58.8	74.07		83.1	94.31	95.34	91	87.04
3	-	79.4	68.23	67.85	85.72	82.76		89.7	91.02	87.37	81.7	74.19
4	-	82.5	79.31	78	84.12	78.95		72.5	72.54	79.17	78.5	65.57
5	-	79.4	89.65	79.7	89	83.93		89.7	89.11	84.38	68.5	68.85
6	-	84.1	80.45	67.9	81	82.14		90.5	88.20	86.46	85.7	73.33
7	-	87.3	73.56	83.3	93.65	82.14		80	80.4	85.41	73.9	51.72
8	-	96.8	100	96.42	100	89.29		89.4	100	95.38	98.5	93.1

Results Analysis -PG

Semesters	2011 – 13					2012 - 14				
	CSE	ECE	EEE	MECH	IT	CSE	ECE	EEE	MECH	IT
1	72.2	77.77	-	100	-	52.9	72.22	64.71	90	76.47
2	55.6	88.88	-	100	-	76.5	66.67	64.71	60	64.71
3	100	94.44	-	100	-	100	100	87.5	100	100
4	100	100	-	100	-	100	100	100	100	100

Number of University Rank Holders

Year	ECE	EEE	CSE	IT	MECH
2007-11	8	-	6	11	-
2008-12	17	17	9	14	14
2009-13	11	14	14	8	8
2012-14	23	27	22	7	20

Looking at the data for UG results, except for the slight dip in the IIyear pass percentage, the overall achievement of the college has been commendable and the achievement of the students and faculty has placed the college among the top 5% of the engineering Colleges in Tamil Nadu. The number of University rank holders has also shown marked improvement over the years.

2.6.3 How are the teaching, learning and assessment strategies of the institution structured to facilitate the achievement of the intended learning outcomes?

A well-defined structure has been evolved by the college to facilitate the achievement of the intended learning outcomes:

Course In-charges prepare a course file for each course that includes syllabus, Course objectives, Course Outcomes and Program Outcomes mapping Cos and POs, lesson plans, assignment topics, question banks, content beyond syllabus to be handled to bridge the gap between COs and POs and content to be delivered in class for each unit.

- The content delivery mode includes lectures, demonstrations, discussion, seminars, interaction and role play which areadopted by the course in-

charge depending upon the nature and level of the unit covered in the course.

- If there exists a gap between course outcomes (CO) and the program outcomes (PO), it is covered by planning and delivering content beyond syllabus.
- The direct assessment of students' achievement is through tests and model examination. The informal assessments take the form of assignments, seminars and slip tests.
- The analysis of the outcomes of the assessments are indicative of the level of understanding of the course by the students
- The teacher accordingly modifies the teaching methods to cater to the needs of the students.
- The above processes are monitored by the HoD, Principal and other assessment committees constituted for this purpose.
- At the end of the semester, the attainment of COs and POs is assessed by various feedback mechanisms and further improvement in the teaching – learning process in planned and executed.
- This reiterative process ensures that the intended learning outcomes are achieved.
- A sample of the feedback mechanisms used are
  - Class Committee Meeting thrice in a semester
  - Students' feedback twice in a semester
  - Internal Audit twice in every semester
  - Project Reviews
  - Course exit survey at the end of every semester
  - Analysis of Cycle Test Performance by course in charges.

2.6.4 What are the measures/initiatives taken up by the institution to enhance the social and economic relevance (student placements, entrepreneurship, innovation and research aptitude developed among students etc.) of the courses offered?

Where ever and whichever course lends itself to include discussions on social and economic relevance, the teacher utilizes the opportunity to point out the significance of the contents with respect to placement, entrepreneurship and research. An in-depth discussion of the courses are undertaken by the faculty and students are motivated to learn the subjects with understanding and application and not just from the point of view of examination.

However, the college takes extra initiatives to augment the relevance of the program to a secure future of the student.

The research aptitude of the student is built through mini projects taken up the students from the second year onwards and the final year full term project.

Participation in state level and National level project presentations and competitions are encouraged with faculty help and financial assistance from the management.

Students are motivated to apply for and receive grants for students' projects.

Under the umbrella of the Industry-Institution -Interactive Cell the

1. Training and Placement cell

2. Career Guidance cell and
3. Entrepreneur cell operate.

The Training and Placement Cell consisting of a Placement officer, Placement Coordinators (faculty members) and student placement coordinators from each department, takes care of the training the students towards on campus and off campus recruitment.

Training the students in general and Technical aptitude, technical and HR interviews not only during the academic year but also during vacation is carried out by the team with dedication.

The individual departments take care of training the students in qualifying examinations like GATE and GRE to help them aim for higher studies in internationally reputed institutions.

Programs are organized by the Entrepreneur Cell to instigate the idea of self-employment and also to create awareness on the financial and management implications of being en entrepreneur.

The communication skills of the students are augmented by the English department which offers Business English Certificate course which is made compulsory for the second year students.

The social relevance and commitment of the education received are also imparted through activities of the Eco club and NSS.

2.6.5 How does the institution collect and analyzed on student performance and learning outcomes and use it for planning and overcoming barriers of learning?

The assessments modes are tuned to test the attainment of learning outcomes.

The classes-in-charge collect and compute the marks of the students and analyze the data for identifying the slow learners and achievers.

The Examination cell further processes the data to obtain the overall pass percentage of each class and each department.

The number of successful candidates at each step of the placement process is also collected and computed.

These analyses show the extent to which the learning outcomes have been realized. These also indicate the steps the teachers have to take lift the under /average performers to a higher achievement level.

The language barrier is addressed by the English department which by conducting special improvement classes.

Coaching classes are conducted for slow learners in each course and special needs of these students are addressed.

Intensive coaching programs are conducted prior to university examinations to boost the confidence of the slow learners.

To help freshers cope with the steep change from school to college, bridge courses are organized at the beginning of the academic year covering language skills, basics of mathematics and exposure to softskills.

2.6.6. How does the institution monitor and ensure the achievement of learning outcomes?

The institution has a clearly defined process to monitor and ensure the achievement of the learning outcomes. The learning outcomes are defined and measured at two levels-course outcomes (COs) and program outcomes (POs). The course outcomes indicate the students' success at the end of each course

undergone and the program outcomes are the expectations of the students' achievements at the end of the four – year study.

The achievement of course outcomes is evaluated by direst methods such as tests, assignments and seminars. At the end of the course, the course teacher gauges the attainment of course outcomes which in turn contribute to the attainment of program outcomes. Any shortfall in the level of achievement is corrected by taking appropriate methods.

The exit survey by the students at the end of the program, the feedback from employers and parents are used as tools for assessing the level of achievement of the program outcomes. The other parameters considered are the placement record, progression to higher studies and self-employment initiatives. If the achievement level is less than the set level, modifications are planned and adopted to meet the target.

Some of the corrective measures adopted to boost the achievement level are

- Changes of modes of delivery of course content.
- Modification / addition of COs and POs
- Special remedial measures to help the slow learners
- Teaching content beyond syllabus
- Organizing Seminars and Guest lectures.

2.6.7. Does the institution and individual teachers use assessment/ evaluation out comes as an indicator for evaluating student performance, achievement of learning objectives and planning? If 'yes' provide details on the process and cite a few examples.

Yes.

The Institution and the individual teachers use outcomes of evaluation processes as indicators for successful implementation of the teaching-learning process

The attainment of course outcomes is a pointer for students' positive response to the teaching of the course.

The attainment level of the program outcomes clearly gauges that the students have undergone the learning process effectively and have used the knowledge fruitfully for self- development.

For example, the percentage of placement (82% in 2010-14 batch) is indicative of the level of students' performance which in turn highlights that the relevant courses have been planned and executed satisfactorily.

Similarly, the students who opt for higher studies easily clear the TANCET exams and a hew have successfully cleared the GATE examination and opt for higher studies in the institution of their choice. This also is a meter to to measure the achievement of learning objectives and students' performance. The college is also striving to increase the number of students appearing for qualifying GATE and other competitive examinations.

The alumni feed back is a valuable source of evaluation and the aluni feedbacks have been very encouraging and serve as a trigger for innovations in teaching –learning exercise.

Any other relevant information regarding Teaching –learning and Evaluation which the college would like to include

Student Enrollment and Profile

- Our institution is one of the reputed institutions in and around Madurai.

- The college has gained a high reputation within a short period of time; so much so the seats through the general counseling are filled within a week of commencement of admissions.
- The admission rate is on par with or even better than other reputed colleges of long standing in and Madurai.

Teaching and learning process

- The institution follows the Outcome Based Education, which focuses on student-centric approach based on Blooms taxonomy. Faculty members use innovative content delivery methods for facilitating the learning process
- General facilities such as digital library, access for online journals, ICT enabled teaching and Wifi are available as supporting structures for effective teaching learning process
- Faculty motivate students to prepare for competitive exams like GATE, GRE, CAT, GMAT etc. taking their own initiatives.

Teacher quality:

- The college recruits and retains the faculty who are competent, qualified, experienced and experts in their respective field of study.

Evaluation process and reforms

- Formative approach of evaluation includes measuring the student's achievement through cycle tests, model exam, and unit tests and for lab, model labs & viva questioning after each experiment.

Student performance and learning outcomes

- 118 university ranks in 2014 batch including 3 gold medals
- 223 students placed in leading MNC's in 2011-2015 batch
- More than Rs.4 Lakhs of prize money won by students in competitions conducted during 2013-2014 along with en equal prize amount awarded by the management recognizing students' achievement.