

# RAO BAHADUR Y.MAHABALESWARAPPA ENGINEERING COLLEGE (Formerly VIJAYANAGAR ENGINEERING COLLEGE)

Mechanical Engg.

## Part A : Institutional Information

### 1 Name and Address of the Institution

RAO BAHADUR Y.MAHABALESWARAPPA ENGINEERING COLLEGE (Formerly VIJAYANAGAR ENGINEERING COLLEGE),  
PRINCIPAL,RAO BAHADUR Y.MAHABALESWARAPPA ENGINEERING COLLEGE,CANTONMENT,BELLARY-583104

### 2 Name and Address of Affiliating University

### 3 Year of establishment of the Institution:

1980,1994

### 4 Type of the Institution:

<input type="checkbox"/> University	<input type="checkbox"/> Autonomous
<input type="checkbox"/> Deemed University	<input checked="" type="checkbox"/> Affiliated
<input type="checkbox"/> Government Aided	

### 5 Ownership Status:

<input type="checkbox"/> Central Government	<input type="checkbox"/> Trust
<input type="checkbox"/> State Government	<input type="checkbox"/> Society
<input type="checkbox"/> Government Aided	<input type="checkbox"/> Section 25 Company
<input checked="" type="checkbox"/> Self financing	<input type="checkbox"/> Any Other(Please Specify)

### 6 Other Academic Institutions of the Trust/Society/Company etc., if any:

Name of Institutions	Year of Establishment	Programs of Study	Location
Veerasaiva College,	1945	PUC, Degree	Bellary
Smt. Allum Sumangamma Memorial women's College	1969	PUC, Degree	Bellary
Vijayanagara College,	1964	PUC, Degree	Hospet
Kottureswara College,	1967	Degree	Kottur
Gangavathi Bhagyamma Rural College,	1970	Degree	Huvinahadagali
Ambli Dodda Bharamappa First Grade College,	1972	Degree	Harapanahalli
Rao Bahadur Y Mhabaleswarappa Engg. College,	1980	Engineering	Bellary
Prodadevaraya Institute of Technology, TB Dam Rd,	1997	Engineering	Hospet
Hanagal Kumaraswamy Polytechnic,	1997	Diploma	Bellary
Allum Karibasappa Institute of Management	1998	(MBA)	Bellary
Vunki Sanna Rudrappa Law College,	1975	Law	Bellary
Togari Veeramallappa Memorial college of Pharmacy,	1985	Pharmacy	Bellary
Kotturswamy College of Education,	1963	TCH	Bellary
Sha Babulal Bhavarilal Nahar College, of Education,	2004	Degree	Hospet
Setra Gurushanthappa Pre University College ,	1942	High School, PUC	Bellary
Kittur Rani Channamma Girls High School, Bellary	1993	Primary and High School	Bellary
Haraginadoni Basavanagouda Pre University College, Kudithini	1963	Primary to PUC	Kudithini
Vijayanagar Comp. Pre University T.B.P Munirabad	1963	PUC, Degree	Munirabad
Kinnalu Poramambe Gurusiddappa High School, Tambrahalli	1968	High School, PUC	Tambrahalli
Akki Basamma Tholappa Pre University College, Tambrahalli	1997	PUC	Tambrahalli
Sha Sheshaji Hastimal Jain Pre University College, Harapanahalli	1999	PUC	Harapanahalli
V.V.Sangha High School, Harapanahalli	2006	High School, PUC	Harapanahalli
Vivekananda Public School, Siruguppa	1993	Primary and High School	Siruguppa
Deshanur Sadashivareddy High School, Deshanuru	1999	Primary and High School	Deshanur
V.V.Sangha's Independent P U College, Bellary	2010	PUC	Bellary
Heerada Sugamma Higher Primary School , Bellary	1924	Primary and Higher Primary	Bellary
Silver Jubilee Memorial Higher Primary School, Bellary	2014	Nursery and Primary	Bellary
Vunki Marisiddamma Primary School, Bellary	1975	Nursery and Primary	Bellary
Gandharva Sangeetha Vidyalaya, Bellary	2006	Music	Bellary
S.K. Modi National School	2014	Nursery to High School	Bellary
Kinder's Garden School	2019	Nursery	Bellary
V V Sangha Public School	2018	Primary and High School	Hospet
V.V. Sangha Independent PU College	2015	PUC	Hagribommanahalli
V.V. Sangha Kindergarden Schhol	2014	Nursery and Primary	Hagribommanahalli
V.V. Sangha Kindergarden Schhol	2014	Nursery and Primary	Munirabad

**7 Details of all the programs being offered by the institution under consideration:**

Name of Program	Program Applied level	Start of year	Year of AICTE approval	Initial Intake	Intake Increase	Current Intake	Accreditation status	From	To	Program for consideration	Program for Duration
MECHANICAL ENGINEERING	UG	1980	1980	60	Yes	120	Not accredited (specify visit dates, year)	17/02/2017	19/02/2017	Yes	4
PRODUCTION MANAGEMENT	PG	2011	2011	18	No	18	Eligible but not applied	17/02/2017	19/02/2017	No	2
THERMAL POWER ENGINEERING	PG	2011	2011	18	No	18	Eligible but not applied	17/02/2017	19/02/2017	No	2

**8 Programs to be considered for Accreditation vide this application:**

S No	Level	Discipline	Program
1	Under Graduate	Engineering & Technology	Civil Engg.
2	Under Graduate	Engineering & Technology	Electronics & Communication Engg.
3	Under Graduate	Engineering & Technology	Mechanical Engg.

**9 Total number of employees in the institution:**

**A. Regular\* Employees (Faculty and Staff):**

Items	2018-19		2017-18		2016-17	
	MIN	MAX	MIN	MAX	MIN	MAX
Faculty in Engineering (Male)	139	145	134	143	144	148
Faculty in Engineering (Female)	34	39	36	41	38	38
Faculty in Maths, Science & Humanities (Male)	11	11	11	11	11	11
Faculty in Maths, Science & Humanities (FeMale)	7	7	7	7	7	7
Non-teaching staff (Male)	145	149	144	149	142	149
Non-teaching staff (FeMale)	4	5	5	5	5	5

**B. Contractual\* Employees (Faculty and Staff):**

Items	2018-19		2017-18		2016-17	
	MIN	MAX	MIN	MAX	MIN	MAX
Faculty in Engineering (Male)	0	0	0	0	0	0
Faculty in Engineering (Female)	0	0	0	0	0	0
Faculty in Maths, Science & Humanities (Male)	0	0	0	0	0	0
Faculty in Maths, Science & Humanities (FeMale)	0	0	0	0	0	0
Non-teaching staff (Male)	8	8	8	8	5	5
Non-teaching staff (FeMale)	7	7	7	7	5	5

**10 Total number of Engineering Students:**

Engineering and Technology- UG	<input checked="" type="checkbox"/> Shift1	<input type="checkbox"/> Shift2
Engineering and Technology- PG	<input checked="" type="checkbox"/> Shift1	<input type="checkbox"/> Shift2
Engineering and Technology- Polytechnic	<input type="checkbox"/> Shift1	<input type="checkbox"/> Shift2
MBA	<input checked="" type="checkbox"/> Shift1	<input type="checkbox"/> Shift2
MCA	<input type="checkbox"/> Shift1	<input type="checkbox"/> Shift2

#### Engineering and Technology- UG Shift-1

Items	2018-19	2017-18	2016-17
Total no. of Boys	1388	1408	1673
Total no. of Girls	925	998	1110
<b>Total</b>	<b>2313</b>	<b>2406</b>	<b>2783</b>

#### Engineering and Technology- PG Shift-1

Items	2018-19	2017-18	2016-17
Total no. of Boys	47	52	61
Total no. of Girls	31	31	34
<b>Total</b>	<b>78</b>	<b>83</b>	<b>95</b>

#### Engineering and Technology- MBA Shift-1

Items	2018-19	2017-18	2016-17
Total no. of Boys	55	49	24
Total no. of Girls	54	33	27
<b>Total</b>	<b>109</b>	<b>82</b>	<b>51</b>

#### 11 Vision of the Institution:

To Produce Professionally Excellent, Knowledgeable, Globally Competitive, Socially Responsible Engineers and Entrepreneurs

#### 12 Mission of the Institution:

- M1: To provide quality education in Engineering and Management.  
M2: To establish a continuous Industry Institute interaction, Participation and Collaboration to contribute skilled Engineers.  
M3: To develop human values, social values, entrepreneurship skills and professional ethics among the technocrats.  
M4: To focus on innovation and development of technologies by engaging in cutting edge research areas.

#### 13 Contact Information of the Head of the Institution and NBA coordinator, if designated:

Head of the Institution	
Name	Dr.Kuppagal Veeresh
Designation	Professor & Principal
Mobile No.	9448043949
Email ID	principalymec@gmail.com

**NBA Coordinator, If Designated**

Name	Dr.Hiregoudar Yerrannagoudar
Designation	Professor
Mobile No.	9449950342
Email ID	hiregoudar.yng@gmail.com

## PART B: Criteria Summary

Criteria No.	Criteria	Total Marks	Institute Marks
1	VISION, MISSION AND PROGRAM EDUCATIONAL OBJECTIVES	60	60.00
2	PROGRAM CURRICULUM AND TEACHING - LEARNING PROCESSES	120	100.00
3	COURSE OUTCOMES AND PROGRAM OUTCOMES	120	109.00
4	STUDENTS' PERFORMANCE	150	78.86
5	FACULTY INFORMATION AND CONTRIBUTIONS	200	177.09
6	FACILITIES AND TECHNICAL SUPPORT	80	75.00
7	CONTINUOUS IMPROVEMENT	50	40.00
8	FIRST YEAR ACADEMICS	50	40.56
9	STUDENT SUPPORT SYSTEMS	50	50.00
10	GOVERNANCE, INSTITUTIONAL SUPPORT AND FINANCIAL RESOURCES	120	120.00
	<b>Total</b>	<b>1000</b>	<b>851</b>

## Part B

### 1 VISION, MISSION AND PROGRAM EDUCATIONAL OBJECTIVES (60)

Total Marks 60.00

#### 1.1 State the Vision and Mission of the Department and Institute (5)

Total Marks 5.00

Institute Marks : 5.00

Vision of the institute	To Produce Professionally Excellent, Knowledgeable, Globally Competitive, Socially Responsible Engineers and Entrepreneurs										
Mission of the institute	<p>M1: To provide quality education in Engineering and Management.</p> <p>M2: To establish a continuous Industry Institute interaction, Participation and Collaboration to contribute skilled Engineers.</p> <p>M3: To develop human values, social values, entrepreneurship skills and professional ethics among the technocrats.</p> <p>M4: To focus on innovation and development of technologies by engaging in cutting edge research areas.</p>										
Vision of the Department	"To Produce Professionally Excellent, Knowledgeable, Globally Competitive, Socially Responsible Mechanical Engineers And Entrepreneurs".										
Mission of the Department	<table border="1"> <thead> <tr> <th>Mission No.</th> <th>Mission Statements</th> </tr> </thead> <tbody> <tr> <td>M1</td> <td>To provide quality education in Mechanical Engineering and Management</td> </tr> <tr> <td>M2</td> <td>To establish a continuous industry - institute interaction, participation and collaboration to contribute skilled Mechanical Engineers</td> </tr> <tr> <td>M3</td> <td>To develop human values, socio-ethical values, entrepreneur skills and professional ethics among Mechanical Engineers</td> </tr> <tr> <td>M4</td> <td>To focus on Research &amp; Development (R &amp; D) and Innovative Technologies by engaging in cutting edge research areas of Mechanical Engineering</td> </tr> </tbody> </table>	Mission No.	Mission Statements	M1	To provide quality education in Mechanical Engineering and Management	M2	To establish a continuous industry - institute interaction, participation and collaboration to contribute skilled Mechanical Engineers	M3	To develop human values, socio-ethical values, entrepreneur skills and professional ethics among Mechanical Engineers	M4	To focus on Research & Development (R & D) and Innovative Technologies by engaging in cutting edge research areas of Mechanical Engineering
Mission No.	Mission Statements										
M1	To provide quality education in Mechanical Engineering and Management										
M2	To establish a continuous industry - institute interaction, participation and collaboration to contribute skilled Mechanical Engineers										
M3	To develop human values, socio-ethical values, entrepreneur skills and professional ethics among Mechanical Engineers										
M4	To focus on Research & Development (R & D) and Innovative Technologies by engaging in cutting edge research areas of Mechanical Engineering										

#### 1.2 State the Program Educational Objectives (PEOs) (5)

Total Marks 5.00

Institute Marks : 5.00

PEO No.	Program Educational Objectives Statements
PEO1	Graduates of Mechanical Engineering shall Develop Strong Academic Foundation for Successful Professional Career
PEO2	Graduates of Mechanical Engineering Acquires skills to excel in the area of Mechanical Engineering both in Industries and Academics
PEO3	Graduates of Mechanical Engineering Possess awareness towards Higher Education, R & D and Socio-Ethical values

#### 1.3 Indicate where the Vision, Mission and PEOs are published and disseminated among stakeholders (10)

Total Marks 10.00

Institute Marks : 10.00

##### The Vision, Mission and PEO's are published at:

- Department website <http://www.rymec.in/me.aspx> (<http://www.rymec.in/me.aspx>)
- Institute website [www.rymec.in](http://www.rymec.in) (<http://www.rymec.in/>)
- On the cover pages of IA Books, Lab Journals and Assignment Books
- Department News Letter
- Department HOD Chamber & Staff rooms
- Department Laboratories
- Department Notice Boards
- Department Class rooms
- Department Seminar Hall
- Display Boards

##### The Vision, Mission and PEO's are disseminated at:

- Workshops
- Seminars
- Parents meeting
- Alumni Association meeting and Alumni meets
- Faculty development programme (FDP)
- Placement & Training programme for the students

#### 1.4 State the process for defining the Vision and Mission of the Department, and PEOs of the program (25)

Total Marks 25.00

Institute Marks : 25.00

### Process for defining the Vision and Mission of the Department

The Department established the Vision and Mission inline with Institution through a consultative process involving all the stakeholders.

The following steps were followed in establishing the Vision and Mission of the Department as shown in the Fig. 1.1

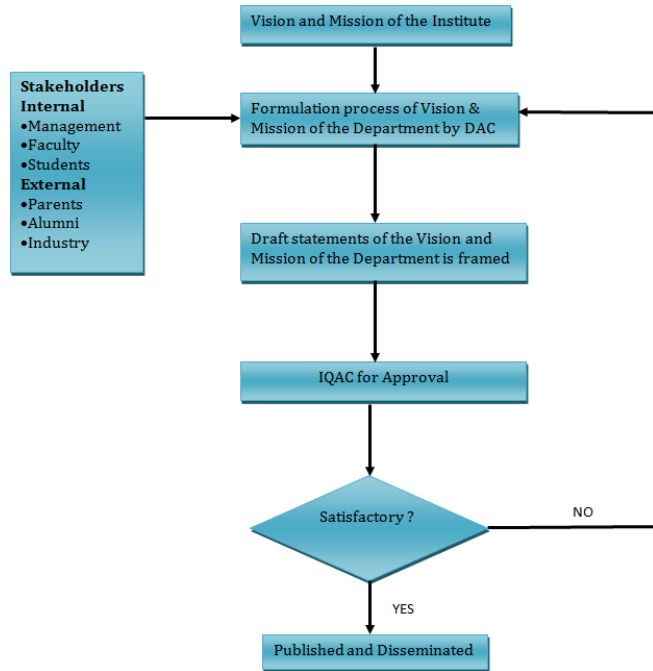


Fig. 1.1 Process for defining the Vision and Mission of the Department

Step1: Vision & mission of the institute are taken as basis.

Step2: With involvement of stakeholders, DAC defines the vision & mission statements which are in line with vision and mission of the institute.

Step3: Draft copy of the vision & mission is framed and forwarded to IQAC for approval.

Step4: If approved Vision & mission of the department is published and disseminated. Else, DAC is redirected to reformulate.

**The process was adopted for articulating Department Vision & mission statements are stated as follows:**

#### **Vision:**

1. Where we would like to go? Or what would we like the program to become?
2. In what directions would we like the program to move?
3. What program outcomes would we like to see in a specific time frame?

#### **Mission:**

1. Where we are? - clearly stating the purpose of the program.
2. What the program is?
3. What it does?
4. For whom it does?
5. How the program will contribute to the education and careers of students passing out?
6. How the teaching and research efforts of the program will enhance student learning?

### Process for defining the PEOs of the program

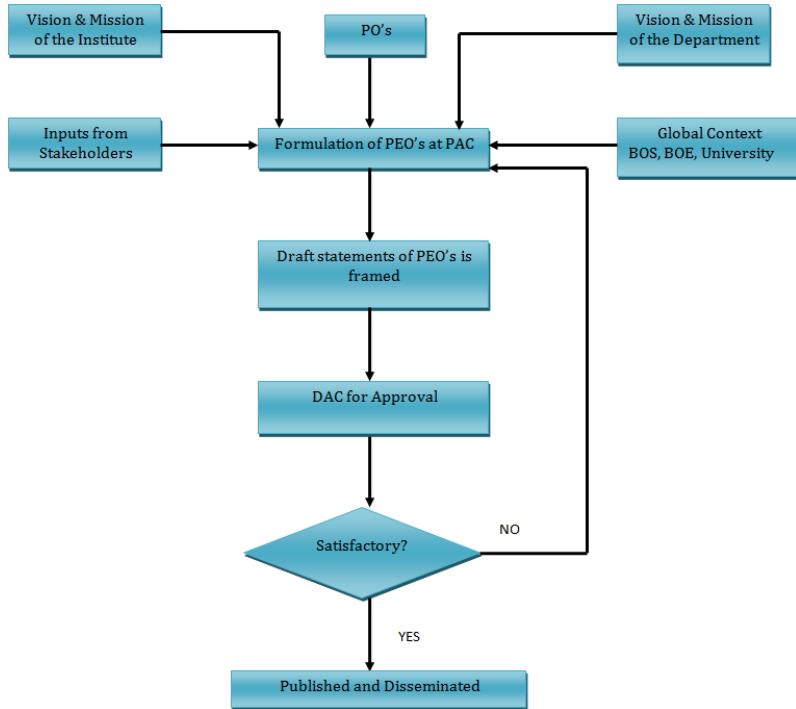


Fig.1.2. Process for defining the PEOs of the program

Step1: Vision and mission of the institute and department is taken as basis.

Step2: Inputs from various stakeholders BOS, BOE, university is considered for formulation of PEO's at PAC.

Step3: Draft statements of PEO's is framed and forwarded to DAC for Approval.

Step4: If approved PEO's are published and disseminated. Else PAC is redirected to formulate PEOs

1.5 Establish consistency of PEOs with Mission of the Department (15)

Total Marks 15.00

Institute Marks : 15.00



**Justifications of Mapping PEO's Vs Dept. MISSION's**

PEO1	MD1	The Department focus on graduates centric learning environment and enhancing technical knowledge through strong academic quality education, self learning through seminars and projects, hands on experience through lab based learning this facilitate the graduate to have a successful career. Hence <b>PEO1</b> is <b>substantially</b> mapped to <b>MD1</b> .
	MD2	Creating a conducive environment where in students are exposed to industry institute interaction through industrial visit, internship invited talks and techno cultural fest through student forum which makes them confident and allow them to lead organizations. Hence <b>PEO1</b> is <b>moderately</b> mapped to <b>MD2</b> .
	MD3	Graduates are exposed to invited talks, workshops, seminars on social responsibilities and ethical values through entrepreneurship development cell for successfully professional career. Hence <b>PEO1</b> is <b>moderately</b> mapped to <b>MD3</b> .
	MD4	Exposing graduates for paper presentation, publications in various conferences and exposure to latest tools and technologies. Hence <b>PEO1</b> is <b>moderately</b> mapped to <b>MD4</b> .
PEO2	MD1	Graduates centric learning exposed to through tools and technologies, self learning through seminar and project, internships this will make students to excel both in industries and academics. Hence <b>PEO2</b> is <b>substantially</b> mapped to <b>MD1</b> .
	MD2	Exposing graduates to self learning skills through invited talks by industry persons, hands on experience through workshops, internships, industrial visits which make the students to excel both in industries and academics. Hence <b>PEO2</b> is <b>substantially</b> mapped to <b>MD2</b> .
	MD3	Creating a conducive environment for graduates organize techno-cultural events through department student forum, makes them confident and allow them to leading organizations become effective team leader with socio-professional ethics. Hence <b>PEO2</b> is <b>slightly</b> mapped to <b>MD3</b> .
	MD4	Department focus on graduates to involved in R&D to excel through latest tools and technologies, in emerging fields of mechanical engineering. Imbibing interest in taking up research activities in the thrust areas of mechanical engineering, with the support of department R&D centre will make the graduates to competent both in industry and academics. Hence <b>PEO2</b> is <b>moderately</b> mapped to <b>MD4</b> .
PEO3	MD1	The curriculum imbibes quality education for overall development of graduates, strengthens their technical skills by providing awareness programs on higher education, research, socio-ethical values by resource persons through seminars, invited talks. Hence <b>PEO3</b> is <b>substantially</b> mapped to <b>MD1</b> .
	MD2	Creating a conducive environment for student centric learning, exposing students to emerging trends of mechanical engineering through continuous industry institute interaction such as industrial visit, internships. This eventually motivates graduates to pursue job oriented courses research activities. Hence <b>PEO3</b> is <b>moderately</b> mapped to <b>MD2</b> .
	MD3	Department focus on graduates to involve in seminars, workshops, presentations, professional traits like communication skills, ethical values, entrepreneur skill and social environmental awareness thus impart human & socio ethical values, leadership quality. Hence <b>PEO3</b> is <b>moderately</b> mapped to <b>MD3</b> .
	MD4	Graduates are exposed to involve in research activity, industry institute interaction, seminars, workshops, invited talks by various resource person, Department hold VTU recognized R&D centre, imparting research activities to carry out their projects, innovative ideas. Hence <b>PEO3</b> is <b>moderately</b> mapped to <b>MD4</b> .

PEO Statements	M1	M2	M3	M4
Graduates of Mechanical Engineering shall Develop Strong Academic Foundation for Successful Professional Career	3	2	2	2
Graduates of Mechanical Engineering Acquires skills to excel in the area of Mechanical Engineering both in Industries and Academics	3	3	1	2
Graduates of Mechanical Engineering Possess awareness towards Higher Education, R & D and Socio-Ethical values	3	2	2	2

## 2 PROGRAM CURRICULUM AND TEACHING - LEARNING PROCESSES (120)

Total Marks 100.00

### 2.1 Program Curriculum (20)

Total Marks 18.00

2.1.1 State the process used to identify extent of compliance of the University curriculum for attaining the Program Outcomes and Program Specific Outcomes as mentioned in Annexurel. Also mention the identified curricular gaps, if any (10)

Institute Marks : 10.00

Rao Bahadur Y Mahabaleswarappa Engineering College affiliated to Visvesvaraya Technological University (VTU), Belagavi, Karnataka, follows the curriculum prescribed by the university. The curriculum of each course is designed and reviewed by the Board of Studies committee of VTU University. VTU curriculum contains, Core, Humanities & Social science, Basic science and elective courses. The Table 2.1(a, b & C) gives a curriculum structure of curriculum followed by the VTU. If some components, to attain CO's/ PO's, are not included in the curriculum provided by the affiliated university then the Institution makes additional efforts to impart such knowledge by covering aspects through "CONTENTS BEYOND SYLLABUS". We add content beyond syllabus by proper "GAP analysis" process. The figure gives the Curriculum Gap analysis.

Table 2.1 a: Program Curriculum Structure for 2010 Scheme.

2010 Scheme								
Semester	BSC	ESC	HSMC	PCC	EC	Project	Seminar	Total
I Sem	2	3	1	2				8
II Sem	2	3	1	2				8
III Sem	1		1	7				9
IV Sem	1		1	7				9
V Sem				7	1			8
VI Sem				7	1			8
VII Sem				6	2			8
VIII Sem				2	2	1	1	6
Total	6	6	4	40	6	1	1	64

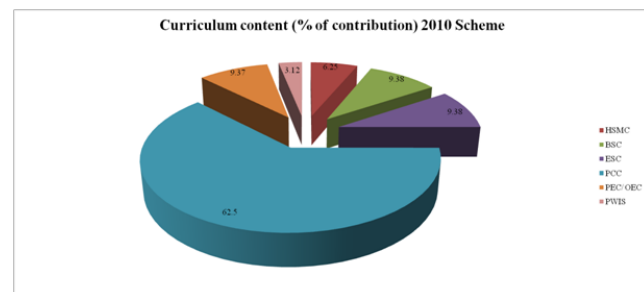


Figure 2.1: Curriculum content (% of contribution) 2010 Scheme.

Table 2.1 b: Program Curriculum Structure for 2015 & 2017 Schemes.

2015 & 2017 Scheme										
Semester	BSC	ESC	HSMC	PCC	PEC	OEC	Project / Mini Project	Seminar	Internship	Total
I Sem	2	3	1	2						8
II Sem	2	3	1	2						8
III Sem	1		1	7						9
IV Sem	1		1	7						9
V Sem				6	1	1				8
VI Sem				6	1	1				8

VII Sem				5	2		1			8
VIII Sem				2	1		1	1	1	6
<b>Total</b>	<b>6</b>	<b>6</b>	<b>4</b>	<b>37</b>	<b>5</b>	<b>2</b>	<b>2</b>	<b>1</b>	<b>1</b>	<b>64</b>

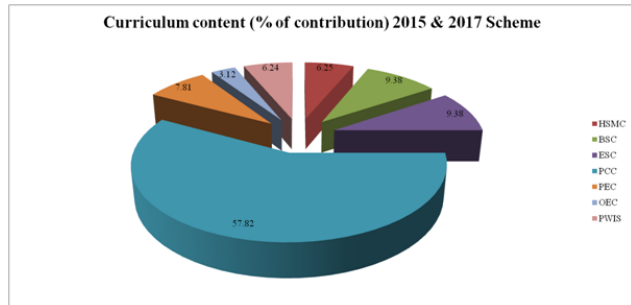


Figure 2.2: Curriculum content (% of contribution) 2015 & 2017 Schemes.

Table 2.1 c: Program Curriculum Structure for 2018 Scheme.

2018 Scheme										
Semester	BSC	ESC	HSMC	PCC	PEC	OEC	Project / Mini Project	Seminar	Internship	Total
I Sem	2	3	1	2						8
II Sem	2	3	1	2						8
III Sem	1		1	7						9
IV Sem	1		1	7						9
V Sem			1	8						9
VI Sem				5	1	1	1			8
VII Sem				4	2	1	1			8
VIII Sem				1	1		1	1	1	5
<b>Total</b>	<b>6</b>	<b>6</b>	<b>5</b>	<b>36</b>	<b>4</b>	<b>2</b>	<b>3</b>	<b>1</b>	<b>1</b>	<b>64</b>

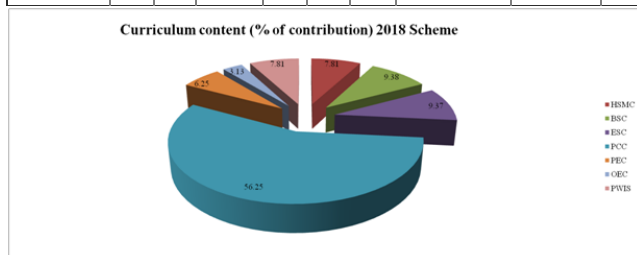


Figure 2.3: Curriculum content (% of contribution) 2018 Scheme.

Table 2.2: Abbreviations.

<b>BSC</b>	Basic Science Courses
<b>ESC</b>	Engineering Science Courses
<b>HSMC</b>	Humanities & Social Sciences Including Management Courses
<b>PCC</b>	Professional Core Courses
<b>PEC</b>	Professional Elective Courses
<b>OEC</b>	Open Elective Courses
<b>EC</b>	Elective Courses

Table 2.3: Definition of Credit for 2015, 2017 & 2018 Scheme:

1Hr. Lecture (L) per week	1 Credit
1Hr. Tutorial (T) per week	1 Credit
1 Hr. Practical (P) per week	2 Credit

Table 2.4: Contribution of Curriculum for 2010, 2015/2017 & 2018 Schemes:

Course Component	Curriculum content (% of contribution)	Curriculum content (% of contribution)	Curriculum content (% of contribution)
	2010 Scheme	2015 & 2017 Schemes	2018 Scheme
Humanities & Social Science	4/64 = 06.25%	4/64 = 06.25%	5/64 = 07.81%
Basic Science courses	06/64 = 09.38%	06/64 = 09.38%	06/64 = 09.38%
Engineering science courses including workshop, Drawing, Basics of Electrical, Mechanical & computer etc.,	06/64 = 09.38%	06/64 = 09.38%	06/64 = 09.37%
Professional core courses	40/64 = 62.50%	37/64 = 57.82%	36/64 = 56.25%
Professional elective courses relevant to chosen specialization or branch	06/64 = 09.37%	05/64 = 07.81%	04/64 = 06.25%
Open Elective courses from other technical or emerging subjects		02/64 = 03.12%	02/64 = 03.13%
Project work, Seminar and Internship in Industry	02/64 = 03.12%	04/64 = 06.24%	05/64 = 07.81%

Table 2.5: Theory and Practical contribution.

Balance of Theory and Practical	
Component	Contribution
Theory	80
Practical	20

Table 2.6: Balance of theory & Practical Contribution for Curriculum.

Component	Hours / Subject/Semester	Hours/ Week/ Semester	Percentage Contribution (%)	
Theory for 4 Hours	06	24	(24/30)*100	80%
Practical for 3 Hours	02	06	(6/30)*100	20%
<b>Total</b>	<b>30 Hours/Week/ Semester</b>		<b>100%</b>	

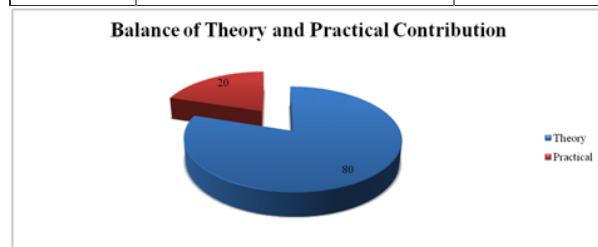


Figure 2.4: Balance of theory & Practical Contribution for Curriculum.

Table 2.7 :Program Specific Outcomes (PSOs)

<b>PSO1</b>	Graduates possess the knowledge to Design, Analyse and Develop Mechanical system
<b>PSO2</b>	Graduates are capable of developing research skills in self sustainable energy sources and composite materials.

A. Process used to identify the Compliance of University Curriculum for Attainment of PO and PSO.

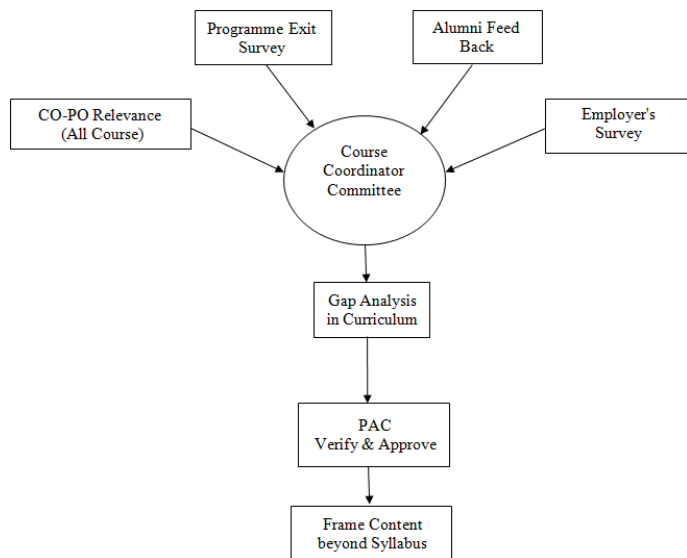


Figure 2.5: Process followed for Gap Analysis.

The percentage compliance of subjects with all the POs and PSOs individually has been tabulated in Table 2.7.

Table 2.8: Compliance of Courses with POs and PSOs for the Academic Year 2018-19

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	
Percentage compliance	83.52	71.29	49.35	34.97	27.09	18.90	14.93	58.68	18.36	16.86	9.81	

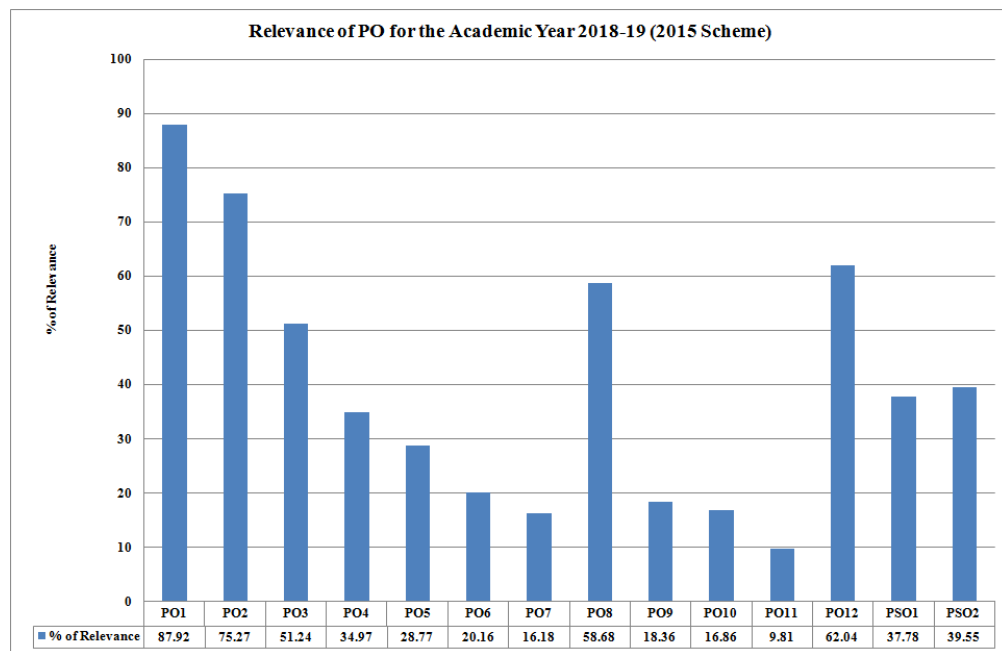


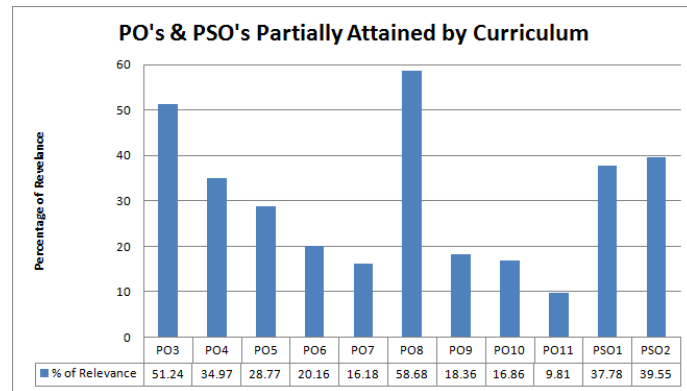
Figure 2.6: PO Attainment Level for the Academic Year 2018-19 (2015 Scheme).

**B. List of curricular gaps for the attainment of defined PO's and PSO's**

The following is the List of PO's and PSO's which are identified as gaps.

**Table 2.9: PO's and PSO's which are identified as gaps.**

Sl. No	Description
PO3	Design/ Development of Solutions
PO4	Conduct Investigations of Complex Problems
PO5	Modern Tool usage
PO6	The Engineer and Society
PO7	Environment and Sustainability
PO8	Ethics
PO9	Individual and team work
PO10	Communication
PO11	Project management and Finance
PSO1	Graduates are able to Design, Analyze and Develop Mechanical Systems
PSO2	Graduates are capable of developing research skills in Self Sustainable Energy Sources and Composite Materials



**Figure 2.7: % of Relevance v/s POs and PSOs**

**2.1.2 State the delivery details of the content beyond the syllabus for the attainment of POs and PSOs (10)**

Institute Marks : 8.00

2017-18

S.No	Gap	Action Taken	Date-Month-Year	Resource Person with Designation	% of students	Relevance to POs, PSOs
1	Engineering & Society	Two days workshop for students "Industrial Safety measures & Regulations"	26/04/2019	Mr. Suresh Kumar Safety Engineer, JSW Steel Ltd	100	PO1, PO2, PO6, PO7, PO8, & PO12 & PSO1
2	Modern Tool Usage	Three days workshop on Overview in Aerospace Domain	05/03/2019	Dr. K Bhadrinarayana Scientist, Dy Project Director Structure division of ISRO Satellite Center Mr. Movin Furtado Senior System Engineer COE AD, B'Lore	100	PO1, PO 2, PO3, PO4, PO5 & PO12 PSO1 & PSO2
3	Design of Solutions	Two Days work Shop on Geometric Dimensions & Tolerances	05/10/2018	Mr. Madhusudhan PS Co-Founder & MD M/S Rectangle Automotive Technologies LLP, Davangere	100	PO1, PO 2, PO3, PO4, & PO12 PSO1
4	Knowledge about Marine Engineering	One Day workshop on Marine Engineering	03/10/2018	Mr. Shivasharannaiah Swamy, Asst. Prof. REVA university B'lore	100	PO1, PO 2, PO3, PO4 & PO12 PSO1
5	Modern Tool Usage	Awareness Program on CAD, CAM CAE	29/09/2018	Mr. Ashwin Kumar Senior Trainee CAD MAX B'Lore Mr. Sanjeev Kumar Mono Tech Chennai	100	PO1, PO2, PO5, & PO12 & PSO1

2016-17

S.No	Gap	Action Taken	Date-Month-Year	Resource Person with Designation	% of students	Relevance to POs, PSOs
1	Modern Tool Usage	Two Days works shop on CAD	23/05/2018	Mr. Ashwin Kumar Senior Trainee CAD MAX B'lore	100	PO1, PO2, PO5, & PO12 & PSO1
2	Engineering & Society	Two days workshop for students "Industrial Safety measures & Regulations"	21/05/2018	Mr. Shanumaka Safety Engineer, HAL B'lore & Mr. Suresh Kumar Safety Engineer, JSW Steel Ltd.	100	PO1, PO2, PO6, PO7, PO8, & PO12 & PSO1
3	Startup Entrepreneurship & Capital funds	One day work shop on Startup Entrepreneurship & Capital funds	10/03/2018	Sri. Manish Kumar, VP KAMC-B'lore.	100	PO1, PO6, PO8, PO9, PO11 & PO 12 PSO1
4	Modern Tool Usage	One day awareness program on Technical Publication	24/03/2018	M/S AAPTA in association with Vision Software Solutions	100	PO1, PO5, PO8 & PO10

2015-16

S.No	Gap	Action Taken	Date-Month-Year	Resource Person with Designation	% of students	Relevance to POs, PSOs
1	Ethics	One day invited talk on "Reengineering- The Life Style"	01/04/2017	Sri. Swamy Chidrupananda Saraswati	100	PO8, PO12
2	Modern Tool Usage	One Day students seminar on CAD/CAM/CAE(UG-NX)	17/03/2017	Mr. Ashwin Kumar Senior Trainee CAD MAX B'lore	100	PO1, PO2, PO5, & PO12 & PSO1
3	Design / development of Solutions	Three Day Workshop on Engine Technology	26/10/2016	Madhusudhan PS Co-Founder & MD M/S Rectangle Automotive Technologies LLP, Davangere	100	PO1, PO 2, PO3, PO4, & PO12 PSO1

2.2 Teaching - Learning Processes (100)

Total Marks 82.00

2.2.1 Describe processes followed to improve quality of Teaching & Learning (25)

Institute Marks : 20.00

Flow chart represents the process to improve quality of Teaching & Learning.

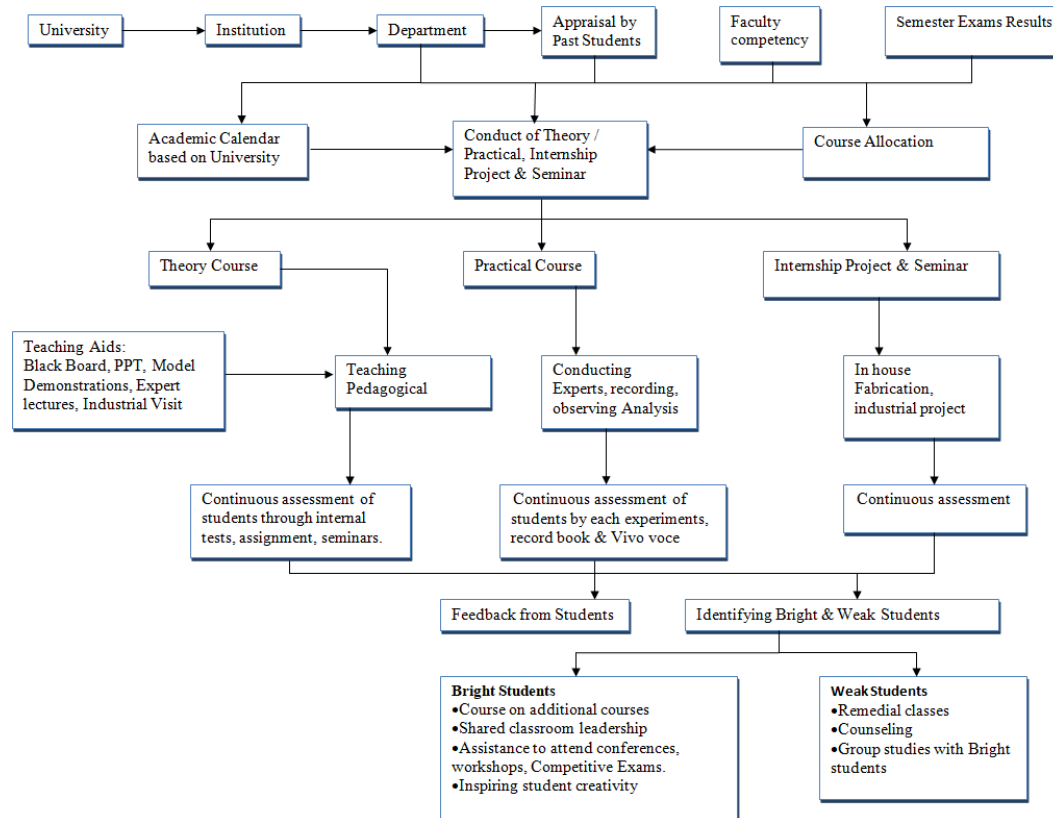


Figure 2.8: Process followed to Improve Quality of Teaching & Learning.

A. Adherence to Academic calendar (Institute and Department calendar)

R Y M Engineering College is affiliated to VTU Belagavi. The Institution prepares academic calendar in line with the university academic calendar. From the Institution academic calendar, department calendar is defined which is specific to the programme and is termed as "Calendar of Events". It consists of the activities planned for the semester which includes various schedules for Continuous Internal evaluation, Parents meeting, Workshops, faculty development program, Industrial visits, laboratory and semester end examination etc.

Course Delivery:

The course delivery is meticulously planned, delivered, monitored by the dept. through the subject handling faculty/instructor, PAC and the programme co-ordinator. The subject handling faculty prepares the course file which includes course outcomes, lesson-plan, course materials, Assignments and previous question papers well in advance before the commencement of the semester. The course outcomes and lesson plan written by the course handling faculty are verified by the domain coordinators under Course Coordinator committee meetings and submitted to PAC. The course plan and adherence to plan is continuously monitored by the HOD.

#### **B. Use of various instructional methods and pedagogical initiatives**

The subject handling faculty/instructors use the following instructional methods:

1. Chalk and Black board
2. Power point presentation
3. Demonstration of concepts using Animated videos/Models
4. Seminars by students
5. Group assignments & Discussions
6. Peer learning
7. Mini/Major projects
8. NPTEL Videos
9. Industrial/Internship visits

The faculty use chalk & board and audio visual aids in teaching. Students are also encouraged for active interaction during the lecture hour by getting the doubts clarified on the spot. Faculty using models charts for interactive teaching.

Faculty adheres to the rubrics framed for the project work and proposes final year Project works and briefs about the objective of the projects to the final year students. Students are also encouraged to carry out external projects from industry and R&D labs. Department allots the projects to all final year students as per their area of interest at the start of the semester. The seminars and projects introduced in the curriculum have made the students to refer to the relevant literature in specific research areas.

Guest lectures are delivered to pre-final and final year students by industry experts / Scientists from R&D labs, Professors from reputed Institute/University. Learning materials of NPTEL are made available for use as e-learning facility. Industrial tours are organized as per the curriculum. Pre-Final and Final year students are encouraged to take up Internship program in Industries, IITs etc. Students are encouraged to participate in Inter and Intra college technical competitions.

#### **C. Methodologies to support weak students and encourage bright students**

##### **Methodologies to identify and support weak students**

The weak students were identified from the several parameters such as classroom discussions, performance in Continuous Internal evaluation (CIE) and University result analysis.

1. Based on the analysis of the above parameters remedial classes are arranged in various courses to strengthen the concepts, knowledge and skills in concerned course.
2. Tutorial classes are provided to improve the problem solving skills through interaction among the student and faculty members.
3. Mentors help students to develop their academic pursuits by boosting their confidence and removing psychological barriers among them

##### **Methodologies to Encouraging bright students**

The bright students are identified from their participation in classroom discussion, performance in the assessment tests and participation in classroom seminars, questioning ability and University result analysis.

1. The bright students are encouraged to participate in symposia, workshops and seminars to gain knowledge on the latest developments.
2. The students are encouraged to take up industry based projects in the advanced topics under the guidance of the faculty members
3. Bright students are encouraged to lead the student's association team which organizes various activities viz. paper presentation, poster presentation, lecture series etc.
4. Best Academic Performance Awards are given to top 3 students, based on their performance in University Examination in the preceding year.
5. Campus Recruitment Training (CRT) classes are organized by the college so as to enable them to obtain placement through campus interviews

#### **D. Quality of classroom teaching**

Each classroom is spacious and equipped with black board and audio visual aids to create a better ambience for effective teaching learning environment.

Each lecture is scheduled for one hour. During the lecture, faculties take efforts to keep students engaged by reviewing and asking questions on previous lecture and interactively deliver the lecture planned for the day. At the end of the lecture, students are encouraged to summarize, ask doubts from the content taught.

Faculty members are taking advantage of sources like National Programme on Technology Enhanced Learning (NPTEL), internet sources for effective teaching.

#### **E. Conduct of Laboratory experiments**

1. Curriculum designed in such a way that sufficient emphasis is laid on hands on experience required for comprehensive understanding of the subjects.
2. Orientation programs are conducted for teaching & non-teaching staff on conduct of experiments recording observations, analysis of data and evaluation procedures.
3. Department is fully equipped as per the curriculum with respect to the laboratories, software and models.
4. Printed laboratory manuals are provided to each student, which covers all the details about the experiments. The observations, necessary calculations and discussions are recorded in printed manuals.
5. Concerned faculty regularly evaluates the lab records.
6. All the faculty handling laboratory work are encouraged to introduce new experiments which are beyond curriculum and are oriented towards R & D.
7. The internal Assessment of students in the laboratory is evaluated based on his/her performance of the experiment in the regular class, lab report and internal Viva. The external examination in the concerned lab is conducted by two examiners viz., internal examiner from the college and external examiner appointed by the University.
8. Students are encouraged to do development / fabrication oriented projects, and to carry out the same mainly within the facilities of the College.
9. Department has provided Project Lab and Research Centre to bridge the gap between the curriculum and the requirements as per the present technical scenario.

#### **F. Continuous Assessment in the laboratory**

Continuous assessment system is also implemented for assessment of laboratory work. The assessment is done on the basis of submission of laboratory records, understanding of the experiment through oral viva voce questions and participation in performing the experiment. Neatness of the laboratory record book is also given weightage in the assessment.

#### **G. Student feedback of teaching learning process and actions taken**

Faculty Feedback Performance for every course is assessed from students with various parameters as defined by the Institution.

The following are the parameters of feedback for considering faculty performance in teaching learning process

1. Creating interest in the subject
2. Regularity in handling the classes
3. Presentation of the subjects
4. Audibility/Clarity of the speech
5. Interaction with students
6. Clarity student's doubts
7. Fairness in evaluation of IA and Assignment books



8. Ability to design quiz/tests/Assignments/Examinations and projects to evaluate students understanding of the course
9. Interact and encourages students to ask questions/participation
10. Fulfillments of course objectives and outcomes

**Action taken process**

1. Lecture classes are monitored by senior Professors and the Head of the Department. They give constructive comments to improve the quality of teaching and the teaching- learning process.
2. Counseling by the HOD for those faculty members who have secured low scores and negative comments, if any, in the feedback. Thus motivates them to improve their skills and abilities.
3. If required training / orientation programmes are conducted by professional experts to master the skills of the faculty members in the nuances of teaching, thus improving the efficiency of teaching-learning process.

**2.2.2 Quality of internal semester Question papers, Assignments and Evaluation (20)**

Institute Marks : 15.00

Internal Assessment marks set as per VTU regulations is 25 for theory and lab subjects, 50 for seminar while it is 100 for project for 2010 scheme, 20 for theory and lab subjects, 50 for seminar while it is 100 for project for 2015 scheme & 40 for theory and lab subjects, 50 for seminar while it is 100 for project for 2017 & 2018 schemes. The internal assessment marks for theory is on three tests conducted as per the calendar of events. Program Coordinator along with test coordinators is responsible for the conduction of the test. The time table for the same will be announced 3-5 days prior to the commencement of the test. The department has a Scrutinizing Committee, comprising of HOD and two senior faculty members to check the quality of the question paper, Revised Blooms Taxonomy levels and COs compliance.

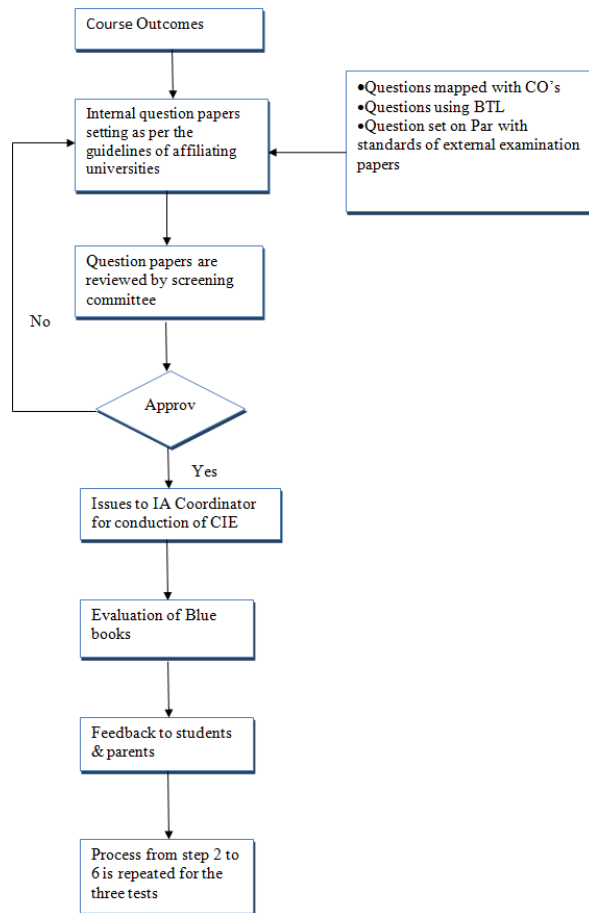


Figure 2.9:Process of Quality of internal semester question paper setting and its Evaluation.

**A Process for internal semester question paper setting and evaluation and effective process implementation**

**Internal semester question paper setting**

1. The course handling faculty sets the question paper for the internal assessment.
2. The question papers for internal assessments are set using Revised Bloom's taxonomy (RBT) levels and are mapped to the Course Outcomes to assess the students at various RBT levels.

**Process for conduction and evaluation of Internal Assessment**

1. The time table for the Internal Assessment Test will be announced in the notice board 3-5 days prior to the commencement of the test by IA coordinators.
2. Department provides blue books for writing the three internal assessment tests and shall be maintained by the Department for at least five years after the announcement of results and available for verification by university.
3. The students write the test in their allotted seats as per their Class Roll Numbers in a test hall, under the invigilation of a faculty member.

4. The scheme of valuation for the question paper is prepared by the course handling faculty ensuring appropriate distribution of marks for fair valuation.
5. The faculty values the blue books adhering to the scheme of valuation.
6. The faculties after every internal assessment test they explain the solution of the questions in the class which will enable them to perform well in the final examination.
7. For any genuine reasons, if a student was unable to perform well in the given three internal assessment tests, improvement test is provided.
8. Students are allowed to check the correction and sign on the bluebooks. After one week of each IA test, progress reports which consist of test marks and attendance status are sent to parents through SMS.

**Process to ensure questions from outcomes/learning levels perspective**

1. The course handling faculty ensures that the internal assessment questions are framed based on various RBT levels and are mapped to the COs.
2. The course handling faculty decides the number of questions and marks allotted for each question.
3. The course coordinator submits the question paper to the scrutinizing committee and the committee checks the quality and RBT level and CO compliance and suggests any changes, if required.

**C Evidence of CO's coverage in class test/mid-term tests**

Individual student's blue book is evaluated and question answered by student is mapped with COs and POs. Sample is shown in CO -PO attainment

**D. Quality of assignment and its relevance to COs**

1. Assignment issue and submission dates are announced by the respective course handling faculty.
2. Assignment questions are prepared using Bloom's Taxonomy process and mapped with CO's. So that students will be able to understand course outcomes of particular course.
3. Assignments are designed in such a way to promote self learning from various sources.
4. Assignments are evaluated and feedback is given to the students to improve their learning and appreciate their efforts.

**2.2.3 Quality of student projects (25)**

Institute Marks : 22.00

The students pursue their project work and submit a dissertation for fulfillment of the course requirements. The project work is executed under the guidance of a faculty member. The student utilizes the technical knowledge learnt during the course work, also utilizes the various software tools in the implementation and execution of the project, and the student is evaluated for the successful performance of the work by a committee constituted for this purpose. The project work involves collection of literature, design/ analysis, collection of experimental data, consolidation of results, preparation of report, presentation of the work carried out at different phases in front of the duly constituted committees. These activities fulfill almost all the programme outcomes. A committee is constituted for identifying the best projects each year. At the end of the project, students are encouraged to publish paper in Journals and conferences and apply for patent.

**Project Group:**

1. Students are allowed to form project batch consisting of minimum two or maximum of four members as per VTU Regulations.
2. If the students are not able to form the project batch, then the project coordinator will help them to form the project batch.

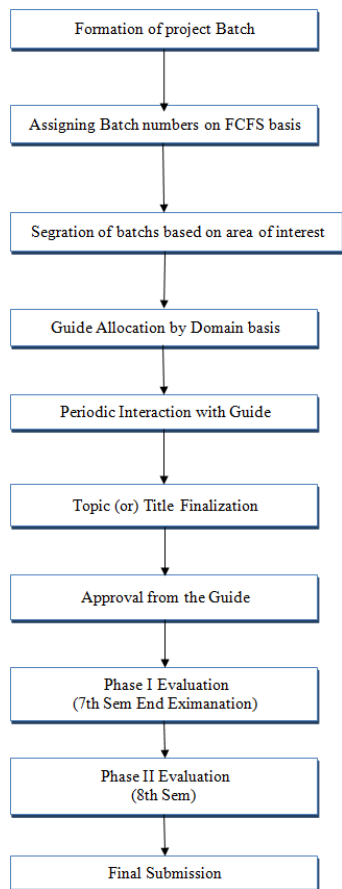


Figure 2.10: Students Project Allocation & Review Process.

#### A. Identification of projects and allocation methodology to Faculty Members

1. The project coordinator instructs the students to identify the project titles and submit the synopsis adhering to the timelines decided by the HOD.
2. Some of the areas identified by the project coordinator are:
  - Production
  - Design
  - Manufacturing
  - Renewable Energy
  - Composites
  - CAD/CAM
  - IC Engines
3. Based on the students chosen area, faculty competency and relevant area of interest is allotted as a guide.
4. Students can choose or come out with problem identification for the execution of the project; else the faculty member will give a problem for execution of the project work.
5. If the students are doing project at industry, they need to consult with internal guide as well as external guide from the industry towards implementation of project.

#### B. Types and relevance of the projects and their contribution towards attainment of

##### POs and PSOs

1. The Guide classifies the project into application, product, research and review and maps the POs and PSOs considering the factors such as environment, safety, ethics, cost and standards.
2. Each project is evaluated with internal marks and is graded relevance to project quality and contribution towards attainment of PO's.

#### C. Process for monitoring and evaluation

1. The project guide will give suggestions towards the improvements of the synopsis.
2. Based on inputs (suggestions from guide), students have to start their project work.
3. All the students must report to their internal guides on weekly basis regarding the progress of their project work.
4. Students should give power point presentations to the Project Review Committee as per the schedule. The committee gives suggestions at the end of the presentation to improve the quality of the work and evaluates the projects based on the project rubrics.
5. Project assessment is evaluated in two phases by a committee consisting of HOD, internal guide, project coordinator, senior faculty of the department. After the reviews, instructions are given to prepare the Project Journal as per the guidelines prescribed by the VTU.

Table 2.10: Rubrics for Project Evaluation.

Sl. No.	Particulars	Max. Marks	Exceptionally Well Executed [M>90%]	Good with room for improvement [70%]	Meets minimum requirement [M<70%]	Course Outcome Mapping	BTL Mapping
1	Relevance of the subject in the present context	10	The topic is highly relevant in the present day context and innovative	The topic is moderately relevant and new	The selected topic is satisfactory	CO1, CO6	L2, L6
2	Literature Survey	10	Literature survey is extensive and all related information is available	Literature survey is quite satisfactory	Literature survey is at minimal level.	CO2	L3
3	Problem formulation	10	Problem is well defined based on the literature survey and topic covering all the aspects	Problem formulation is satisfactory	Problem formulation does not cover the objectives	CO3	L6
4	Experimental observation/theoretical modeling	10	Data collection/design/fabrication work obtains correct solution to model developed for the project	Data collection/design/fabrication work obtains proper solution to model developed for the project	Partially collection of data needs improvement in preparing model	CO5	L6
5	Results – presentation and discussion	10	Team members were very well balanced and had clear articulation and work presentation was excellent	Coordinated team members and presentation was good	Presentation needs improvement	CO4, CO7	L3
6	Conclusion and scope of future work	10	Proper conclusions are drawn with validation and scope for future work is also well articulated	Conclusion drawn are satisfactory and future scope listing is satisfactory	Insufficient conclusion articulation and future scope listing needs to be revised	CO7	L4, L3
7	Overall presentation of the thesis/ Oral presentation	40	Information in project report is in logical sequence with diagrams, tables, results and discussion. The report is complete and in proper format, oral presentation was excellent.	Information in project report is in logical sequence with diagrams, tables, results and discussion. The report is partially complete and in proper format, oral presentation was satisfactory	Information in project report is in logical sequence with diagrams, tables, results and discussion. The report is complete but not in proper format, oral presentation was not up to the mark.	CO7, CO8	L3, L4, L6

**D. Process to assess individual and team performance**

1. Project progress seminars are conducted once in every month by the team with respective guide and domain experts.
2. The project seminar should be given by all the project team members according to the division of project.
3. Each student in the project team is assessed to their skill set to deliver the seminar, explain the concept and way to make project assess team to understand their work.
4. Each individual and team performance is purely based on this project seminar presentation and the viva voce and progress work they show to their guide.

**E. Quality of completed projects/working prototypes**

1. Final project demo for the working prototype and the report are evaluated by respective guide with domain experts.
2. The projects are evaluated and are awarded the internal assessment marks for maximum of 100 and are graded according to the project contribution towards attainment of PO's and PSO's.

**Best Project Evaluation Scheme**

Quality of the project is measured in terms of type (application/ Product development/ research/ review), and the focused areas being literature survey, problem definition, fabrication or software code, environment safety and society, ethical responsibility, project presentation, cost and project management, research publications & Innovation/ IPR.

The quality of the Project is assessed through Project quality assessment sheet. A sample copy of Project Quality Assessment sheet is provided below. Based on the scores thus obtained, best student projects are selected.

Table 2.11: Best Project details for the Academic year 2016-17.

SL.No.	Name of the Student	USN	Project Title	Name of the Guide
01	SHIVAKUMAR R B	3VC13ME104	Design and fabricate 8 legged walking machine	Prof. S G Desai
	SIDDHAHANTA REDDY	3VC13ME106		
	PRAKASH ASAMPOOR	3VC13ME075		

	K RANJITH KUMAR	3VC13ME043		
02	SUNIL KUMAR R	3VC14ME425	Mechanical modernized standing mobility wheel chair	Prof. V Balraj
	NANDEESH	3VC14ME413		
	MAHESH K	3VC14ME409		
	PRADEEP H TIRUKOJI	3VC14ME418		
03	CHANDRASHEKAR S A	3VC13ME018	Design and fabrication of drone (Helicopter)	Prof. Lakshmana Naik T K
	SAIBANNA	3VC13ME100		
	MANJUNATHA K	3VC13ME060		
	NAGARAJ BULDERU	3VC13ME068		
04	VARUN KUMAR B	3VC13ME116	Design & fabrication of balancing machine for a rotating masses	Prof H M Naveen
	SUJITH KUMAR Y	3VC13ME109		
	P CHANDRA PRAKASH	3VC13ME084		
	VEERABHADRAPPA	3VC13ME118		

Table 2.12: Best Project details for the Academic year 2017-18.

Sl.No	Name of the Student	USN	Project Title	Name of the Guide
01	B VIJAY KUMAR	3VC12ME011	Design and fabrication of segway vehicle	Prof. R H M Somanath Swamy RHMS-1
	SADDAM HUSSAIN	3VC12ME087		
	SHABARESH GUPTHA K S	3VC12ME093		
	KHAJA FARHEEN TAJ	3VC13ME411		
02	AKSHAY M	3VC13ME008	DESIGN AND FABRICATION OF PLANTAIN FIBER EXTRACTION MACHINE	prof. K.C.Mahendra
	GAVI PRAKASH	3VC13ME027		
	JUSTIN MATHEW	3VC13ME040		
	MALLIKARJUN	3VC13ME058		
03	HARISH KUMAR B	3VC14ME034	FILAMENT FLOW FABRICATER	Prof. B G Chandru
	AKHIL KUMAR S	3VC14ME004		
	RAMANJANEYA	3VC14ME082		
	SACHIN T	3VC14ME089		
04	ASHOK M	3VC12ME009	Design, analysis and fabrication of square thread based lifting system.	Prof. H M Naveen HMN-1
	KIRAN KUMAR B	3VC12ME045		
	LAKSHMANA NAIKA L	3VC12ME051		
	ANAND REDDY N	3VC12ME066		
05	VEERESH	3VC12ME112	Manually operated Rice dehusking Machine	Prof. Shivamanappa G Desai SGD-1
	VINAYAKA BELUR	3VC12ME119		
	W PAVAN KUMAR	3VC12ME122		
	ABHISHEK H	3VC13ME400		

Table 2.13: Best Project details for the Academic year 2018-19.

SL.NO	Name of the Student	USN	Project Title	Name of the Guide
01	MOUNESH G S	3VC15ME057	Design and fabrication of Mechanical walker using new mechanism	Prof. S G Desai
	SUNANDA N	3VC15ME109		
	MALLI B	3VC16ME406		
	CHAITHRA K	3VC16ME407		
02	VENKATESH P	3VC15ME117	Design and fabrication of Coconut oil extraction machine	Prof. H M Naveen
	MANOJ KUMAR	3VC15ME048		
	VILAS KUMAR	3VC15ME119		
	EARANAGOUDA	3VC15ME019		
03	SUBHAM	3VC15ME104	Design and fabrication of multi person cycle	Dr. kori Nagaraj
	SREEKANTH N T	3VC15ME102		
	SHARNAGAWADA S V	3VC15ME093		
	SHIVARAJ	3VC15ME097		

	ASHISH A G	3VC15ME008		
04	VISHWANATHA REDDY . P	3VC16ME447	Design and fabrication of Robotic oil Skimmer using Bluetooth powered by solar energy	Prof. Lakshman Naik
	NINGRAJ DODAMANI	3VC15ME064		
	RAJESH . W	3VC15ME081		
	MAHAMED HYDER . P H	3VC15ME043		

2.2.4 Initiative related to industry interaction (15)

Institute Marks : 13.00

## A. Industry supported laboratories

### Initiatives taken in curriculum towards Industry Institute Interaction

The Elective subjects offered in Final and pre final year are mostly related to current trends in industries.

Industrial visit is a part of curriculum in pre final and final year. Students visit reputed industries and gain knowledge on latest technologies, safety measures and working environment. Resource persons from various Industries are invited to deliver present technologies in Industries.

The Mechanical Engineering department has signed MOU's with various industries. These industries offer to our students to take up Internships, industrial visit, invited talks and final year projects. Workshops are conducted to our students in association with industry.

### Industry supported lab

#### 1. TATA Technologies Ltd., Pune.

Mechanical Engineering Department has incepted a state of the art, Centre of Excellence by signing an MoU with TATA Technologies Ltd., Pune in association with Science & Technology Park under National Skill Development Programme, initiated through MHRD, Government of India, with nomenclature "Centre for Invention, Innovation, Incubation & Training". These competency centres will expose our students to advanced technology adapted in the industry, provides hands-on experience, enhances employability skills and makes them Industry ready. These centres will help Mechanical, Electrical, Electronics and Management students in enhancing their core skills. These centres are geared with facilities which will make possible that our students can apply the theoretical knowledge gained in their academics and create conceptual projects and products that will solve many industrial and social problems.

The Competency centres established are:

- I. "Technology Research & Development Centre" having high-end Industrial workstations with Commercial licensed S/W tools.

This competency centre is equipped with the following facilities:

1. **Workstation Configuration:** Intel Xeon Processor, 32 GB RAM, 8GB Quadro Graphics with dual Bezel monitors.

Make: HP

2. **List of Softwares available:**

- a. Dassault Systems suite package comprises of 40 modules for Industrial Design & Development, Research and Consultancy.
- b. MSC Software Suite package comprises of 81 different modules of Adams, Easy5, Marc, Apex, Nastran and SCFlow for CAE analysis.
- c. ISRO-FEAST comprises of 10 tools for Linear static, Free Vibration, Buckling, Transient, Frequency response, Random response, Base excitation, Thermal analysis and many more.
- d. I-GET IT for E-Learning on advanced technologies in CAD, CAM, CAE and PLM

3. **The center can deliver domain trainings on:**

- a. Product Design
- b. Product Modelling
- c. Analysis
- d. Product Life cycle and Data management.

- II. "Advanced Manufacturing Engineering Centre" Equipped with Advanced Digital manufacturing facilities.

This Competency centre is equipped with the following facilities:

1. **Equipments:-**

- a. CNC Vertical Milling Machine- AMS 430
- b. Industrial Robot for Arc Welding - YASKAWA MOTOMAN
- c. 3D Printer for Additive Manufacturing - ULTIMAKER 3 EXTENDED
- d. 3D Scanner for Reverse Engineering - EINSCAN SE

2. **Support Software:-**

- a. CAPS Turn, CAPS Mill, seeNC Turn, seeNC Mill, nCyclo Turn, nCyclo Mill.
- b. CURA.
- c. EinScan-S series\_v2.7.0.8

3. **This centre can deliver hands on domain trainings on:**

- a. CNC Technology and Operations.
- b. Digital Manufacturing.
- c. Robotic Operations & Programming.
- d. Reverse Engineering.
- e. Re- Engineering.
- f. Computer Integrated Manufacturing.

**Table 2.14: Relevance of POs & PSOs in collaboration with Industry.**

Sl.No	Criterion	Relevance to Pos & PSOs
1	Electives	PO4, PO5, PO6, PO7, PO12
2	Industrial visits	PO1, PO3, PO5, PO6, PO7, PO8, PO9, PO10, PO12
3	Industry Internships	PO3, PO5, PO6, PO7, PO8, PO9, PO11, PO12
4	Workshops	PO1, PO2, PO3, PO4, PO5, PO9, PO10, PO12, PSO1, PSO2

## 2.2.5 Initiative related to industry internship/summer training (15)

Institute Marks : 12.00

The students are encouraged to take internship program during their semester break. Faculty members give their guidelines, suggestions and scope and contact details of an internship. They also help the students by interacting with the industrial experts, provide the students recommendation letters and other necessary supports. The alumni coordinator constantly interacts with alumni

those who are working in the industries and request them to provide necessary guidelines and supports for their junior's internship.

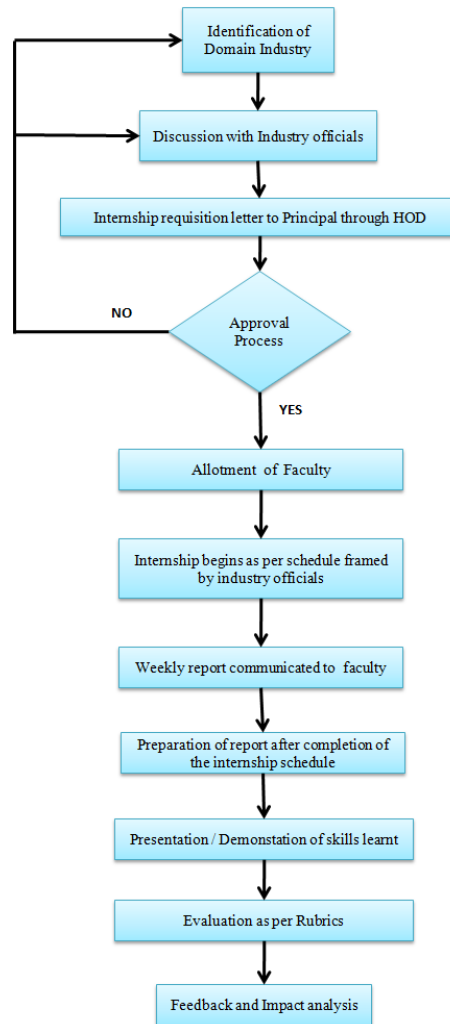


Figure 2.11. Process followed for Internship training

**Initiation**

1. Students and department together identify domain industry and discuss with Industry officials for the Internship
2. The requisition letter by the students to Principal through Internship coordinator and Head to undergo internship for the stipulated period.
3. The Internship coordinator allocates a faculty to guide for each student.

**Implementation**

1. The faculty and the mentor for the internship in the industry will communicate the progress of the internship training periodically.
2. After completion of the internship training, a detailed report is submitted to the department

**Evaluation**

1. Student will present a power point presentation about the internship training in front of a panel of professors along with the guide.
2. Based on the performance the evaluation process is carried out by a panel of professors along with the guide and marks are awarded as per the rubrics shown in table below.

**Table No. 2.15: Rubrics for the Internship Program**

Evaluation Component	Marks Allocation	PO's
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<b>Domain Knowledge:</b> Engineering Knowledge/Problem analysis/Design/development of solutions/Conduct Investigations of Complex Problems/Modern Tool usage	<b>25 Marks</b>	PO1,PO2,PO3,PO4,PO5
<b>Soft Skills:</b> Communication/Individual and Team work Project and Resource management Including finance /Engineer and Society Environment and Sustainability	<b>10 Marks</b>	PO6,PO7,PO9,PO10,PO11
<b>Discipline and Behavior</b>	<b>05 Marks</b>	PO8
<b>Report writing</b>	<b>10 Marks</b>	PO10
<b>TOTAL</b>	<b>50 Marks</b>	

#### A. Industrial training/tours for students

Industrial visit is considered as one of the tactical methods of teaching. The main reason behind this industrial visit was to let students know things practically through interaction, working methods and employment practices. Moreover, it gives exposure from academic point of view. Main aim of industrial visit is to provide an exposure to students about practical working environment. They also provide students a good opportunity to gain full awareness about industrial practices.

**Table 2.16 : Industrial Visit Details.**

Sl.No	Date of visit	Organization visited	No. of students visited	Relevance of PO's
01	19 <sup>th</sup> Aug 2016	EMD Loco shed & Carriage workshop, Southern Western railways, Hubballi	80	PO1, PO5, PO6, PO7, PO8, PO9, PO10, PO12
02	19 <sup>th</sup> Aug 2016	M/S. Mcallus, Manufacturers of Orthopedic Implants & Instruments and M/S. HalleysBlue Steels Pvt Ltd, Mundargi Industrial Area, Ballari	80	PO1, PO3, PO5, PO6, PO7, PO8, PO9, PO10, PO12
03	9 <sup>th</sup> May 2018	M/S. Mcallus, Manufacturers of Orthopedic Implants & Instruments and M/S. HalleysBlue Steels Pvt Ltd, Mundargi Industrial Area, Ballari	78	PO1, PO3, PO5, PO6, PO7, PO8, PO9, PO10, PO12
04	29 <sup>th</sup> Oct 2018	Industrial Visit to BTPS	129	PO1, PO6, PO7, PO8, PO9, PO10, PO12
05	10 <sup>th</sup> Nov 2018	Industrial Visit to JSW	40	PO1, PO3, PO5, PO6, PO7, PO8, PO9, PO10, PO12
06	24 to 26 October 2019	Three Day Industrial Visit to Varahi Power Plant	46	PO1, PO6, PO7, PO8, PO9, PO10, PO12

#### B. Industrial /internship /summer training of more than two weeks and post training

**Table 2.17: Students Internship Details for the Academic Year 2018-19.**

SL No.	Organization	Name of the Student	USN	Date of Start of Training	Duration of The Training
1	JSW Steels Limited	Vishnu T M	3VC12ME120	21/01/2019	One Month
2	SLD Steels PVT Limited	N Girish Aravind	3VC14ME029	21/01/2019	One Month
3	MITL Bellary	Manjunath V B	3VC14ME050	09/01/2019	One Month
4	JSW Steels Limited	A P Bharath	3VC15ME001	21/01/2019	One Month
5	MGSSK Bhalki	Akshatakumar H	3VC15ME004	07/01/2019	One Month
6	JSW Steels Limited	Akshay Kumar N	3VC15ME005	21/01/2019	One Month
7	MGSSK Bhalki	Ashish A G	3VC15ME008	07/01/2019	One Month
8	SCR Guntakal	B Pramod Kumar	3VC15ME009	01/02/2019	One Month
9	SCR Guntakal	Bheemesh D	3VC15ME010	01/02/2019	One Month
10	SCR Guntakal	Doddana Gouda G	3VC15ME016	07/01/2019	One Month
11	SCR Guntakal	Earana Gouda	3VC15ME019	07/01/2019	One Month
12	SCR Guntakal	Ediga Ranjith	3VC15ME020	01/02/2019	One Month
13	SCR Guntakal	Gandam Rajavikram	3VC15ME022	07/01/2019	One Month
14	Techno Fly Bangalore	Gulammbabi	3VC15ME023	08/01/2019	One Month

15	Halleys Blue Bellary	Hasansab	3VC15ME026	21/01/2019	One Month
16	Hindustan Ship Yard Visakhapatnam	K K Saiprasad	3VC15ME027	10/01/2019	One Month
17	Hindustan Ship Yard Visakhapatnam	Kalyankumar Yadav	3VC15ME030	10/01/2019	One Month
18	Techno Fly Bangalore	Karanam Naveenkumar	3VC15ME031	08/01/2019	One Month
19	Hindustan Ship Yard Visakhapatnam	Kasa Sujith Kumar	3VC15ME032	10/01/2019	One Month
20	Techno Fly Bangalore	Kiran Kumar K	3VC15ME033	08/01/2019	One Month
21	Techno Fly Bangalore	Kirankumar Angadi	3VC15ME034	08/01/2019	One Month
22	JSW Steels Limited	Kishor Kumar B	3VC15ME035	21/01/2019	One Month
23	Hindustan Ship Yard Visakhapatnam	Kolur Kotresha	3VC15ME036	10/01/2019	One Month
24	JSW Cement	Lokesh Reddy P	3VC15ME039	14/01/2019	One Month
25	SCR Guntakal	M Mahesh	3VC15ME041	01/02/2019	One Month
26	Hindustan Ship Yard Visakhapatnam	M Venkata Sai Praveen	3VC15ME042	10/01/2019	One Month
27	BHUWALKA Pipes PVT LTD	Mahesh Kumar E	3VC15ME045	14/01/2019	One Month
28	SCR Guntakal	Mallikarjuna	3VC15ME046	01/02/2019	One Month
29	Halleys Blue Bellary	Manjunath Poojari	3VC15ME047	21/01/2019	One Month
30	SCR Guntakal	Manojkumar Alabusogi	3VC15ME048	01/02/2019	One Month
31	SLD Steels PVT Limited	Maruthi	3VC15ME050	21/01/2019	One Month
32	Halleys Blue Bellary	Md Ejazhussain B	3VC15ME052	21/01/2019	One Month
33	BHUWALKA Pipes PVT LTD	Md Suhail	3VC15ME054	14/01/2019	One Month
34	MITL Bellary	Mounesh	3VC15ME057	09/01/2019	One Month
35	SCR Guntakal	Naresh G	3VC15ME060	07/01/2019	One Month
36	SCR Guntakal	Nikhil Kumar A	3VC15ME062	07/01/2019	One Month
37	JSW Steels Limited	Ningraj Dodamani	3VC15ME064	21/09/2019	One Month
38	SCR Guntakal	Niranjana H	3VC15ME065	07/01/2019	One Month
39	TECH F Bangalore	Pavan K	3VC15ME069	07/01/2019	One Month
40	Hindustan Ship Yard Visakhapatnam	Pawan Kumar B	3VC15ME070	10/01/2019	One Month
41	JSW Steels Limited	Prashant Kumar H	3VC15ME075	07/01/2019	One Month
42	JSW Steels Limited	Purushotham Reddy N	3VC15ME079	07/01/2019	One Month
43	Hindustan Ship Yard Visakhapatnam	Raguraja Reddy A	3VC15ME080	10/01/2019	One Month
44	SLD Steels PVT Limited	Rajesha W	3VC15ME081	21/01/2019	One Month
45	JSW Steels Limited	S Shafi Ahamed	3VC15ME084	07/01/2019	One Month
46	SCR Guntakal	Sai Kumar B G	3VC15ME088	07/01/2019	One Month
47	TECH F Bangalore	Sai Manish Gurrani	3VC15ME089	07/01/2019	One Month
48	MITL Bellary	Santhosha Kr	3VC15ME091	09/01/2019	One Month
49	MGSSK Bhalki	Shambulinga S M	3VC15ME092	07/01/2019	One Month
50	MGSSK Bhalki	Sharanana Gowda S V	3VC15ME093	07/01/2019	One Month
51	MGSSK Bhalki	Sharane Gowda	3VC15ME094	07/01/2019	One Month
52	MGSSK Bhalki	Shivaraj Amaresh Koppad	3VC15ME097	07/01/2019	One Month
53	MGSSK Bhalki	Sreekanth N T	3VC15ME102	07/01/2019	One Month
54	MGSSK Bhalki	Subham	3VC15ME104	07/01/2019	One Month
55	Hindustan Ship Yard Visakhapatnam	Suman H M	3VC15ME108	10/01/2019	One Month
56	MITL Bellary	Sunanda	3VC15ME109	09/01/2019	One Month
57	MC Bellary	Syed Mahaboob Pasha	3VC15ME111	10/01/2019	One Month
58	MITL Bellary	Vamshi Krishna	3VC15ME115	09/01/2019	One Month
59	MITL Bellary	Veerasha	3VC15ME116	09/01/2019	One Month
60	SCR Guntakal	Venkatesh P	3VC15ME117	07/01/2019	One Month
61	JSW Steels Limited	Vikas Kumar Das	3VC15ME118	21/01/2019	One Month
62	SCR Guntakal	Vilas Kumar R	3VC15ME119	07/01/2019	One Month
63	JSW Steels Limited	Virupaksha Gowda K	3VC15ME121	07/01/2019	One Month
64	Hindustan Ship Yard Visakhapatnam	Yashwanth	3VC15ME124	10/01/2019	One Month

65	JSW Steels Limited	Venkat Nikhil A	3VC15ME127	21/01/2019	One Month
66	SANSERI Engineering LTD Bangalore	Akshy Kumar	3VC16ME402	21/01/2019	One Month
67	SCR Guntakal	Anjineyalu	3VC16ME403	01/02/2019	One Month
68	SCR Guntakal	Bhaskar L	3VC16ME405	07/01/2019	One Month
69	MITL Bellary	Bureddy Malli	3VC16ME406	09/01/2019	One Month
70	MITL Bellary	Chathra	3VC16ME407	09/01/2019	One Month
71	JSW Cement	Eresh Kumar	3VC16ME412	14/01/2019	One Month
72	MC Bellary	H.M Karthik	3VC16ME415	10/01/2019	One Month
73	MC Bellary	Kumar A	3VC16ME420	10/01/2019	One Month
74	JSW Cement	Madival Mahadeva	3VC16ME422	14/01/2019	One Month
75	JSW Steels Limited	Manikanta	3VC16ME424	15/01/2019	One Month
76	TBK India PVT LTD Pune	Manjunath Hiremath	3VC16ME425	11/01/2019	One Month
77	JSW Steels Limited	Manjunath K	3VC16ME426	18/01/2019	One Month
78	JSS Structure	Mohan Kumar	3VC16ME430	16/01/2019	One Month
79	SLD Steels PVT Limited	Naveen A	3VC16ME432	21/01/2019	One Month
80	JSS Structure	Rajesh J	3VC16ME433	16/01/2019	One Month
81	MC Bellary	Ravindranath P Patil	3VC16ME434	10/01/2019	One Month
82	JSS Structure	Zameer Ahmed	3VC16ME436	16/01/2019	One Month
83	JSW Cement	Sanjeevappa	3VC16ME437	14/01/2019	One Month
84	MITL Bellary	Sharanabasava C	3VC16ME439	09/01/2019	One Month
85	SLD Steels PVT Limited	Shivaprasad Bv	3VC16ME440	21/01/2019	One Month
86	MITL Bellary	Shivaraj E	3VC16ME441	09/01/2019	One Month
87	JSW Steels Limited	S.Mallikarjuna	3VC16ME444	21/01/2019	One Month
88	Halleys Blue Bellary	Syed Alam	3VC16ME445	21/01/2019	One Month
89	JSS Structure	C.Varun Kumar	3VC16ME446	16/01/2019	One Month
90	JSW Cement	P.Vishwanath Reddy	3VC16ME447	14/01/2019	One Month
91	JSW Steels Limited	Yogesh.D	3VC16ME448	18/01/2019	One Month

Table 2.18. : Students Internship Details for the Academic Year 2017-18.

SL.No.	Organization	Name of the Student	USN	Date of Start of Training	Duration Of The Training
1	HAL Bangalore	Lokesh Reddy P	3VC15ME039	19-01-2018	02 weeks
2	HAL Bangalore	C Varun Kumar	3VC16ME446	19-01-2018	02 weeks
3	HAL Bangalore	D Mohan Kumar	3VC16ME430	19-01-2018	02 weeks
4	HAL Bangalore	S Zameer Ahmed	3VC16ME436	19-01-2018	02 weeks
5	JSW Steel Ltd, Tornagallu	P Vishwanath Reddy	3VC16ME447	15-01-2018	04 weeks
6	JSW Steel Ltd, Tornagallu	H M Karthik	3VC16ME415	05-02-2018	04 weeks
7	Komet India	H M Karthik	3VC16ME415	23-01-2018	10 Days
8	JSW Severfield Structures Ltd, Tornagallu	Rajesh J	3VC16ME433	07-07-2018	02 weeks
9	Ravindra & Company Ltd, Bidar	Subham	3VC15ME104	06-07-2018	02 weeks

**C. Impact Analysis of Industrial training/internship**

1. Students are exposed to real time practical experience of the subjects studied in the classrooms and realized the practical importance of the subjects.
2. Industrial training inculcated more interest in the subjects.
3. Students are inspired to do hard work and get placed in such industries.
4. Communication skills of the students improved.
5. Students were exposed to the industry standards, importance of the safety measures, workplace culture & discipline and meeting the deadlines.

**D. Student Feedback on Initiative**

The student feedback on programme /industrial visit is collected. Feedback is considered for further improvement.

## Define the Program specific outcomes

## 3.1 Establish the correlation between the courses and the Program Outcomes (POs) and Program Specific Outcomes (PSOs) (20)

Total Marks 20.00

PSO1	Graduates are able to Design, Analyze and Develop Mechanical Systems
PSO2	Graduates are Capable of Developing Research Skills in Self Sustainable Energy sources and Composite Materials.

## 3.1.1 Course Outcomes(COs)(SAR should include course outcomes of one course from each semester of study, however, should be prepared for all courses and made available as evidence, if asked) (5)

Institute Marks : 5.00

Note : Number of Outcomes for a Course is expected to be around 6.

Course Name :	C2 02	Course Year :	2016-2017
---------------	-------	---------------	-----------

Items	2018-19
C2 02.1	Understand the mechanical properties of metals, their alloys and various modes of failure.
C2 02.2	Describe the microstructures of ferrous and non-ferrous materials and their mechanical properties.
C2 02.3	Interpret the processes of heat treatment of various alloys.
C2 02.4	Discuss the properties, potentialities of various materials available and material selection procedures.
C2 02.5	Explain about the composite materials, their processing and applications.

Course Name :	C2 13	Course Year :	2016-2017
---------------	-------	---------------	-----------

Items	2018-19
C2 13.1	Discuss the operations of various machine tools
C2 13.2	Describe various machining processes, parameters & relative quantities
C2 13.3	Explain different cutting tool materials, Geometry & surface finish
C2 13.4	Apply mechanics of machining process to machine tool operations
C2 13.5	Analyze tool wear mechanisms and equations to enhance tool life and minimize machining cost.

Course Name :	C3 03	Course Year :	2017-2018
---------------	-------	---------------	-----------

Items	2018-19
C3 03.1	Understand the basic quantities related to power absorbing and generating machines.
C3 03.2	Comprehend thermodynamic relations applied to turbo machines.
C3 03.3	Analyse the performance of steam turbines.
C3 03.4	Evaluate the work interactions and characteristics of hydraulic turbines.
C3 03.5	Interpret the working of pumps and compressors.

Course Name :	C3 09	Course Year :	2017-2018
---------------	-------	---------------	-----------

Items	2018-19
C3 09.1	Understand the concepts behind formulation methods in FEM.
C3 09.2	Identify the application and characteristics of FEA elements such as bars, beams, plane and iso-parametric elements.
C3 09.3	Develop element characteristic equation and generate global equation.
C3 09.4	Apply suitable boundary conditions to a global equation for static and dynamic problems .
C3 09.5	Evaluate displacements, stress and strains for different mechanical elements.

Course Name :	C4 02	Course Year :	2018-2019
---------------	-------	---------------	-----------

Items	2018-19
C4 02.1	Analyse the functional requirements of a fluid power transmission system for a given application.
C4 02.2	Visualize working functions of hydraulic/pneumatic circuits.
C4 02.3	Design an appropriate hydraulic or pneumatic circuits or combination circuits for a given application.
C4 02.4	Select and size the different components of the circuit.
C4 02.5	Develop a comprehensive circuit diagram by integrating the components selected for the given application.

Course Name :	C4 10	Course Year :	2018-2019
---------------	-------	---------------	-----------

Items	2018-19
C4 10.1	Discuss various Additive manufacturing processes and their applications.
C4 10.2	Illustrate various motors, Actuators used in the system and design of hydraulic & pneumatic circuits.
C4 10.3	Analyze basic concepts, applications of polymers and powder metallurgy in additive manufacturing.
C4 10.4	Examine nanomaterials with various characterization techniques and its applications.
C4 10.5	Develop NC, CNC machine programming for automated industrial applications.

3.1.2 CO-POmatrices of courses selected in 3.1.1(Six matrices to be mentioned; one per semester from 3rd to 8th semester) (5)

Institute Marks : 5.00

1 . course name : C202

Course	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
C202.1	2 ▼	2 ▼	1 ▼	1 ▼	- ▼	- ▼	- ▼	2 ▼	- ▼	- ▼	- ▼	2 ▼
C202.2	3 ▼	3 ▼	1 ▼	1 ▼	- ▼	- ▼	- ▼	2 ▼	- ▼	- ▼	- ▼	2 ▼
C202.3	2 ▼	2 ▼	2 ▼	2 ▼	- ▼	1 ▼	1 ▼	2 ▼	- ▼	- ▼	- ▼	2 ▼
C202.4	3 ▼	3 ▼	2 ▼	2 ▼	- ▼	1 ▼	1 ▼	2 ▼	- ▼	- ▼	- ▼	2 ▼
C202.5	2 ▼	2 ▼	2 ▼	2 ▼	- ▼	1 ▼	1 ▼	2 ▼	- ▼	- ▼	- ▼	2 ▼
<b>Average</b>	<b>2.4</b>	<b>2.4</b>	<b>1.6</b>	<b>1.6</b>		<b>1</b>	<b>1</b>	<b>2</b>				<b>2</b>

2 . course name : C213

Course	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
C213.1	2 ▼	2 ▼	- ▼	- ▼	- ▼	- ▼	- ▼	2 ▼	- ▼	- ▼	- ▼	3 ▼
C213.2	2 ▼	2 ▼	- ▼	- ▼	- ▼	- ▼	- ▼	2 ▼	- ▼	- ▼	- ▼	3 ▼
C213.3	2 ▼	2 ▼	- ▼	- ▼	- ▼	- ▼	- ▼	2 ▼	- ▼	- ▼	- ▼	3 ▼
C213.4	2 ▼	2 ▼	- ▼	- ▼	- ▼	- ▼	- ▼	2 ▼	- ▼	- ▼	- ▼	3 ▼
C213.5	2 ▼	2 ▼	- ▼	- ▼	- ▼	- ▼	- ▼	2 ▼	- ▼	- ▼	- ▼	3 ▼
<b>Average</b>	<b>2</b>	<b>2</b>						<b>2</b>				<b>3</b>

3 . course name : C303

Course	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
C303.1	3 ▼	3 ▼	- ▼	2 ▼	- ▼	- ▼	- ▼	2 ▼	- ▼	- ▼	- ▼	2 ▼
C303.2	3 ▼	3 ▼	- ▼	2 ▼	- ▼	- ▼	- ▼	2 ▼	- ▼	- ▼	- ▼	2 ▼

C303.3	3 ▼	3 ▼	3 ▼	2 ▼	- ▼	- ▼	- ▼	2 ▼	- ▼	- ▼	- ▼	2 ▼
C303.4	3 ▼	3 ▼	3 ▼	2 ▼	- ▼	- ▼	- ▼	2 ▼	- ▼	- ▼	- ▼	2 ▼
C303.5	3 ▼	3 ▼	3 ▼	2 ▼	- ▼	- ▼	- ▼	2 ▼	- ▼	- ▼	- ▼	2 ▼
<b>Average</b>	<b>3</b>	<b>3</b>	<b>3</b>	<b>2</b>				<b>2</b>				<b>2</b>

4 . course name : C309

Course	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
C309.1	3 ▼	3 ▼	3 ▼	2 ▼	- ▼	- ▼	- ▼	2 ▼	- ▼	- ▼	- ▼	- ▼
C309.2	3 ▼	3 ▼	3 ▼	3 ▼	- ▼	- ▼	- ▼	2 ▼	- ▼	- ▼	- ▼	1 ▼
C309.3	3 ▼	3 ▼	3 ▼	3 ▼	- ▼	- ▼	- ▼	2 ▼	- ▼	- ▼	- ▼	2 ▼
C309.4	3 ▼	3 ▼	3 ▼	3 ▼	- ▼	- ▼	- ▼	2 ▼	- ▼	- ▼	- ▼	2 ▼
C309.5	3 ▼	3 ▼	3 ▼	3 ▼	- ▼	- ▼	- ▼	2 ▼	- ▼	- ▼	- ▼	2 ▼
<b>Average</b>	<b>3</b>	<b>3</b>	<b>3</b>	<b>2.8</b>				<b>2</b>				<b>1.75</b>

5 . course name : C402

Course	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
C402.1	1 ▼	1 ▼	- ▼	- ▼	- ▼	- ▼	- ▼	2 ▼	- ▼	- ▼	- ▼	2 ▼
C402.2	1 ▼	1 ▼	2 ▼	- ▼	- ▼	- ▼	- ▼	2 ▼	- ▼	- ▼	- ▼	2 ▼
C402.3	2 ▼	2 ▼	3 ▼	- ▼	- ▼	- ▼	- ▼	2 ▼	- ▼	- ▼	- ▼	2 ▼
C402.4	2 ▼	2 ▼	- ▼	- ▼	- ▼	- ▼	- ▼	2 ▼	- ▼	- ▼	- ▼	2 ▼
C402.5	2 ▼	2 ▼	2 ▼	- ▼	- ▼	- ▼	- ▼	2 ▼	- ▼	- ▼	- ▼	2 ▼
<b>Average</b>	<b>1.6</b>	<b>1.6</b>	<b>2.33</b>					<b>2</b>				<b>2</b>

6 . course name : C410

Course	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
C410.1	- ▼	- ▼	- ▼	1 ▼	3 ▼	- ▼	2 ▼	2 ▼	- ▼	- ▼	- ▼	2 ▼
C410.2	- ▼	- ▼	2 ▼	1 ▼	2 ▼	- ▼	- ▼	2 ▼	- ▼	- ▼	- ▼	2 ▼
C410.3	1 ▼	1 ▼	2 ▼	1 ▼	2 ▼	- ▼	- ▼	2 ▼	- ▼	- ▼	- ▼	2 ▼
C410.4	2 ▼	2 ▼	2 ▼	2 ▼	3 ▼	- ▼	- ▼	2 ▼	- ▼	- ▼	- ▼	2 ▼
C410.5	2 ▼	2 ▼	2 ▼	2 ▼	3 ▼	- ▼	- ▼	2 ▼	- ▼	- ▼	- ▼	2 ▼
<b>Average</b>	<b>1.67</b>	<b>1.67</b>	<b>2</b>	<b>1.4</b>	<b>2.6</b>		<b>2</b>	<b>2</b>				<b>2</b>

1 . Course Name : C202

Course	PSO1	PSO2
C202.1	1 ▼	3 ▼
C202.2	1 ▼	3 ▼
C202.3	1 ▼	3 ▼
C202.4	1 ▼	3 ▼
C202.5	1 ▼	3 ▼
<b>Average</b>	<b>1</b>	<b>3</b>

**2 . Course Name : C213**

Course	PSO1	PSO2
C213.1	- ▼	2 ▼
C213.2	- ▼	2 ▼
C213.3	- ▼	2 ▼
C213.4	- ▼	2 ▼
C213.5	- ▼	2 ▼
<b>Average</b>		<b>2</b>

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**3 . Course Name : C303**

Course	PSO1	PSO2
C303.1	- ▼	- ▼
C303.2	- ▼	- ▼
C303.3	- ▼	2 ▼
C303.4	- ▼	2 ▼
C303.5	- ▼	2 ▼
<b>Average</b>		<b>2</b>

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**4 . Course Name : C309**

Course	PSO1	PSO2
C309.1	3 ▼	2 ▼
C309.2	2 ▼	3 ▼
C309.3	2 ▼	2 ▼
C309.4	1 ▼	2 ▼
C309.5	3 ▼	3 ▼
<b>Average</b>	<b>2.2</b>	<b>2.4</b>

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**5 . Course Name : C402**

Course	PSO1	PSO2
C402.1	2 ▼	- ▼
C402.2	2 ▼	- ▼
C402.3	3 ▼	- ▼
C402.4	1 ▼	- ▼
C402.5	2 ▼	- ▼
<b>Average</b>	<b>2</b>	

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**6 . Course Name : C410**

Course	PSO1	PSO2
C410.1	- ▼	- ▼
C410.2	1 ▼	- ▼
C410.3	2 ▼	- ▼
C410.4	2 ▼	- ▼
C410.5	2 ▼	- ▼

Average	1.75	
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3.1.3 - A Program level Course-PO matrix of all courses INCLUDING first year courses (10)

Institute Marks : 10.00

Course	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
C104/C12	2	2	PO3	PO4	PO5	2	2	PO8	PO9	PO10	PO11	2
C106/C12	2.33	2	3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
C113/C13	2.67	2.33	PO3	PO4	2.67	PO6	PO7	PO8	PO9	PO10	PO11	PO12
C201	2.25	2.25	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
C202	3	2.4	1.6	1.6	PO5	1	1	2	PO9	PO10	PO11	2
C203	3	3	2	2	PO5	PO6	PO7	2	PO9	PO10	PO11	2
C204	3	3	2.8	2.6	PO5	PO6	PO7	2	PO9	PO10	PO11	2
C205	3	2	PO3	PO4	PO5	PO6	PO7	2	PO9	PO10	PO11	3
C206	2.8	2.6	2.5	PO4	2.2	PO6	PO7	2	2.2	3	PO11	3
C207	3	2	PO3	2	PO5	PO6	PO7	2	PO9	PO10	PO11	2
C208	3	2	PO3	PO4	PO5	PO6	PO7	2	PO9	PO10	PO11	2
C209	2.25	2.25	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
C210	3	3	3	2.5	2	PO6	PO7	2	PO9	PO10	PO11	2
C211	3	3	1	PO4	PO5	1.8	PO7	2	PO9	PO10	PO11	1.8
C212	3	3	1.25	1	1	PO6	PO7	2	PO9	PO10	PO11	1.5
C213	3	2	PO3	PO4	PO5	PO6	PO7	2	PO9	PO10	PO11	3
C214	3	2	2	2	PO5	PO6	PO7	2	PO9	PO10	PO11	2
C215	3	3	2	2.4	2.2	PO6	PO7	2	PO9	PO10	PO11	1
C216	3	PO2	PO3	PO4	PO5	2	PO7	2	2	PO10	PO11	3
C301	2	2	2.25	PO4	PO5	PO6	PO7	2.2	PO9	PO10	2	2
C302	2.8	3	3	2.6	PO5	PO6	PO7	2	PO9	PO10	PO11	1.2
C303	3	3	3	2	PO5	PO6	PO7	2	PO9	PO10	PO11	2
C304	3	2.6	2.8	PO4	PO5	PO6	PO7	2	PO9	PO10	PO11	2.4
C3053	PO1	PO2	PO3	PO4	PO5	2.6	PO7	2.6	3	2.8	2.6	2.8
C3054	3	2	2	PO4	2	PO6	PO7	2	PO9	PO10	PO11	2
C3062	3	2	PO3	PO4	PO5	2.4	2.6	2	PO9	PO10	PO11	2
C307	3	2	PO3	PO4	PO5	2	2	PO8	2	2	PO11	2
C308	3	3	3	2.8	PO5	2	2	2	2	2	PO11	2
C309	2.6	3	3	2.8	3	PO6	PO7	2	PO9	PO10	PO11	1.75
C310	1.6	1.6	1.2	1.2	3	PO6	PO7	2	PO9	PO10	PO11	2
C311	3	3	2	1.4	2.2	PO6	PO7	2	2	PO10	PO11	2
C312	3	3	3	2	2.2	PO6	PO7	2	2	PO10	PO11	2
C3133	3	2	PO3	PO4	2	PO6	PO7	2	PO9	PO10	PO11	3
C3142	3	2	2	PO4	PO5	3	2.4	2	PO9	PO10	2	2
C3144	PO1	PO2	PO3	PO4	PO5	2	PO7	3	3	3	PO11	2
C315	3	2	PO3	PO4	PO5	PO6	1	2	PO9	PO10	PO11	1
C316	1	2	2	2.4	2.2	PO6	PO7	2	PO9	PO10	PO11	PO12
C401	3	2	PO3	PO4	PO5	1	1	2	PO9	PO10	PO11	2.2



C402	2.2	2	2.33	2	2	PO6	PO7	2	PO9	PO10	PO11	2
C403	3	2.8	2.8	2.5	2	2	2	2	PO9	PO10	PO11	2
C4042	2.6	2.6	2.5	2.7	PO5	2	1	2	PO9	PO10	PO11	2
C4045	3	3	3	3	PO5	PO6	PO7	2	PO9	PO10	PO11	PO12
C4051	3	PO2	3	PO4	PO5	PO6	PO7	2	PO9	PO10	PO11	PO12
C4053	1.8	1.75	1.2	PO4	2.67	PO6	PO7	2	PO9	PO10	PO11	2
C406	2.83	2.67	2.33	2.83	2	PO6	PO7	PO8	PO9	PO10	PO11	2
C407	2.67	2.17	2.2	2.67	3	PO6	PO7	2	PO9	2	PO11	2
C408	3	3	2.75	3	3	2	2.2	3	3	3	2.25	3
C409	3	3	3	2	2	2	PO7	2	1	PO10	2.5	2
C410	2.4	1.67	2	1.4	2.6	PO6	2	2	PO9	PO10	PO11	2
C4112	2	2	2.2	PO4	PO5	PO6	PO7	2	PO9	PO10	PO11	2
C412	3	3	2	1	2	2.25	2.33	2.5	3	3	2	3
C413	3	3	2.75	3	3	2	2.2	3	3	3	2.25	3
C414	3	3	1	1	1	1	3	3	3	3	1	3

3.1.3 - B Program level Course-PSO matrix of all courses INCLUDING first year courses

Course	PSO1	PSO2
C104/C12	PSO1	PSO2
C106/C12	PSO1	PSO2
C113/C13	PSO1	PSO2
C201	PSO1	PSO2
C202	1	3
C203	PSO1	2
C204	2	2.2
C205	PSO1	1
C206	2.4	PSO2
C207	PSO1	3
C208	2	2
C209	PSO1	PSO2
C210	3	2
C211	PSO1	1.25
C212	PSO1	1.5
C213	PSO1	2
C214	2	2
C215	2.6	1.8
C216	PSO1	1.6
C301	PSO1	PSO2
C302	2.4	2
C303	PSO1	2
C304	3	2
C3053	PSO1	PSO2
C3054	1	2

C3062	PSO1	1
C307	PSO1	PSO2
C308	PSO1	PSO2
C309	2.2	2.4
C310	1	PSO2
C311	PSO1	2
C312	2	2
C3133	PSO1	2
C3142	1.6	1.6
C3144	PSO1	PSO2
C315	1.17	1.33
C316	2.6	2.2
C401	PSO1	PSO2
C402	2	PSO2
C403	2.8	2
C4042	2.25	PSO2
C4045	PSO1	PSO2
C4051	PSO1	PSO2
C4053	1.6	PSO2
C406	2	2
C407	2.5	PSO2
C408	3	3
C409	2	2
C410	1.75	PSO2
C4112	PSO1	PSO2
C412	2	PSO2
C413	3	3
C414	3	3

**3.2 Attainment of Course Outcomes (50)**

Total Marks 41.00

**3.2.1 Describe the assessment processes used to gather the data upon which the evaluation of Course Outcome is based (10)**

Institute Marks : 7.00

In the Outcome Based Education (OBE), assessment is done through more than one process, carried out by the institution that identifies, collects, and prepares data to evaluate the achievement of course outcomes (COs).

Assessment tools are categorized into two methods to assess the course outcomes:

1. Direct method
2. Indirect method

Direct method displays the student's knowledge and skill for their performance in continuous internal assessment tests, semester examinations, seminars, and classroom and laboratory assignments etc. These methods provide a sampling of what students know and/or can do and provide strong evidence of student's learning.

Indirect method such as survey and interview ask the stakeholders to reflect on student's learning. The different stake holders give opinions or thoughts to assess about the graduate's knowledge or skills.

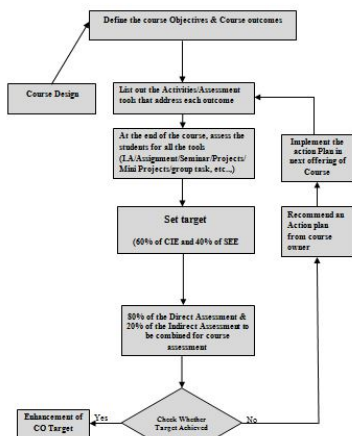


Fig. 3.1: Course Outcome Assessment Process

Table 3.1: Direct & Indirect Assessment Methods

Direct Assessment Methods		
Sl. No.	Direct Assessment Method	Description
1.	Internal Assessment Test	It is a metric to continuously assess the attainment of course outcomes, student's learning domains and thus improve the teaching-learning process. For the 2010 and 2015 Scheme, the Internal Assessment marks (CIE) in a theory paper shall be based on best two out of three tests, For 2017 and 2018 Scheme, the Internal Assessment marks (CIE) in a theory paper shall be based on average of three tests generally conducted at the end of 6 <sup>th</sup> , 10 <sup>th</sup> and 14 <sup>th</sup> weeks of each semester. An additional test may be conducted for the lateral entry students before the end of the semester.
2.	Lab Assessment Test	Lab Assessment is a metric to mainly assess student's practical knowledge with their designing capabilities. In the case of a Practical, the IA marks shall be based on the laboratory journals/reports, conduction of experiments and one practical test.
3.	Theory Semester Examination	Semester theory examinations are the metric to assess whether all the course outcomes are attained w.r.t course objectives framed by the instructor.
4.	Practical Semester Examination	Semester Examination is more focused on attainment of course outcomes and uses a descriptive exam. Practical semester examination focuses on conduction of experiments and vice-voice.
5.	Seminar	The IA marks in the case of projects, internship and seminars in the final year shall be based on the evaluation at the end of 8th semester by a committee consisting of the Head of the concerned Department and two senior faculty members of the Department, one of whom shall be the project / seminar guide.
6.	Project	
7.	Project Work Viva-voce	
8.	Internship / Professional Practice	Viva-voce examination in project work and Internship shall be conducted batch-wise.
9.	Assignment	Assignment is a metric used primarily to assess student's knowledge/skills/attitude with their designing capabilities.
Indirect Assessment Methods		
Sl. No.	Indirect Assessment Method	Description
10.	Course Exit Survey	Collect information from the students to assess the learning outcomes of the course at the end of the semester.
11.	Self Assessment Report	Collect information from the students for self assessing themselves about the course after completion of course.
12.	Tutorials	Collect information regarding the benefit of tutorial classes engaged in solving different problems and content beyond syllabus.

**Table 3.2: Course Outcome Assessment methodology, tools and frequency of use for direct and indirect method is described in the table below:**

Sl. No.	Assessment Method	Assessment frequency	Assessment Tool	In charge	Reviewer
1	Internal Assessment Test	At the end of 6 <sup>th</sup> , 10 <sup>th</sup> and 14 <sup>th</sup> weeks of each semester.	Student's performance in internal assessment booklets.	Course owner	PAC PC/HOD
2	Lab Assessment Test	At the end of the semester	Student's performance in conducting experiments and journal writing.	Course owner	PAC PC/HOD
3	Theory Semester Examination	At the end of the semester	Student's performance in university exams.	University Evaluators	
4	Practical Semester Examination	At the end of the semester	Student's performance in conducting experiments during university exams.	University Evaluators	
5	Seminar	During the 8 <sup>th</sup> semester	Rubrics	Seminar Guide/Seminar Coordinator	PAC PC/HOD
6	Project	During the 8 <sup>th</sup> semester	Rubrics	Project Guide/ Project Coordinator	PAC PC/HOD
7	Project Work Viva-voce	At the end of the 8 <sup>th</sup> semester	Student's performance in university exams	University Evaluators	
8	Internship / Professional Practice	At the end of the 8 <sup>th</sup> semester	Student's performance in university exams	University Evaluators	
9	Course Exit Survey	Semester end	Student survey	Course Owner	CC PAC PC
10	Self Assessment Report	Semester end	Student survey	Course Owner	CC PAC PC
11	Tutorial	Semester end	Student survey	Course Owner	CC PAC PC

**3.2.2 Record the attainment of Course Outcome of all courses with respect to set attainment levels (40)**

Institute Marks : 34.00

Measuring CO Attainment through Internal Assessments:

Attainment Levels Vs Target

Attainment Level 1: 80% Students scoring more than 60% marks out of maximum marks.

Attainment Level 2: 70% Students scoring more than 60% marks out of maximum marks.

Attainment Level 3: 60% Students scoring more than 60% marks out of maximum marks.

CO Attainment has been calculated by assuming 70% weightage to university examination and 30% weightage to Internal Assessments

Final CO Attainment has been calculated by assuming 80% weightage to Direct Attainment and 20% weightage to Indirect Attainment (using Survey)

Course	Course index no.	CO1	CO2	CO3	CO4	CO5	CO6	Average
Engineering Mathematics – III (15MAT31)	C201	75.965	49.52	49.82	51.32			56.66
Materials Science (15ME32)	C202	56.75	59.15	56.90	59.34	57.73		57.97
Basic Thermodynamics (15ME33)	C203	47.30	47.96	49.22	48.65	39.97		46.62
Mechanics of Materials (15ME34)	C204	39.35	43.06	43.20	39.35	39.88		40.97
Metal Casting and Welding (15ME35A)	C205	56.00	55.59	55.63	56.76	56.16		56.02
Computer Aided Machine Drawing (15ME36 A)	C206	75.93	75.93	85.31	75.46	95.67		81.66
Materials Testing Lab (15MEL37A)	C207	74.98	74.98	74.48	74.98	74.98		74.88
Foundry and Forging Lab (15MEL38A)	C208	69.19	69.19	69.19	69.19	69.19		69.19
Engineering Mathematics – IV (15MAT41)	C209	58.44	43.395	43.40	66.98			53.05
Kinematics of Machinery (15ME42 )	C210	79.62	80.77	83.42	77.20	81.09		80.42
Applied Thermodynamics (15ME43 )	C211	43.99	39.50	48.24	38.91	39.05		41.94
Fluid mechanics (15ME44)	C212	48.05	53.59	60.49	58.39	54.29		54.96
Machine Tools and Operations (15ME45B)	C213	71.71	69.48	68.92	69.59	69.28		69.80
Mechanical Measurements and Metrology (15ME46B )	C214	58.77	59.72	60.17	61.14	59.64		59.89
Mechanical Measurements and Metrology Lab (15MEL47B )	C215	77.90	73.15	73.25	73.18	69.27		73.35
Machine Shop (15MEL48B )	C216	76.89	76.91	76.89	67.66	67.66		73.20
Management and Engineering Economics (15ME51 )	C301	58.21	64.19	59.04	63.59	58.88		60.78
Dynamics of Machinery (15ME52 )	C302	61.31	58.98	67.83	59.41	60.70		61.64
Turbo Machines (15ME53 )	C303	36.07	35.00	36.21	36.62	34.89		35.76
Design of Machine Elements - I (15ME54 )	C304	37.02	36.50	42.18	38.98	39.43		38.82
Human Resource Management (15ME553 ) (Professional Elective-I)	C3053	84.77	90.59	90.58	79.82	90.20		87.19
Non Traditional Machining (15ME554)(Professional Elective-I )	C3054	64.65	64.46	64.54	64.11	64.17		64.38
Energy and Environment (15ME562)(Open Elective-I)	C3062	62.165	62.76	54.76	69.90	70.29		63.97
Fluid Mechanics & Machinery Lab (15MEL57 )	C307	70.84	71.40	73.58	71.59	71.30		71.74
Energy Lab (15MEL58)	C308	73.82	73.82	75.36	73.82	73.82		74.13
Finite Element Analysis (15ME61 )	C309	54.97	55.29	57.26	53.65	58.65		55.96
Computer integrated Manufacturing (15ME62)	C310	48.36	51.26	49.41	51.30	49.13		49.89
Heat Transfer (15ME63)	C311	53.41	51.14	49.94	51.16	55.72		52.27
Design of Machine Elements -II (15ME64 )	C312	47.65	49.31	48.28	48.50	51.32		49.01
(Professional Elective-II ) Metal Forming(15ME653 )	C3133	73.73	73.97	72.48	74.84	72.93		73.59
(Open Elective-II) Industrial Safety (15ME662 )	C3142	70.05	70.66	64.28	74.75	67.15		69.38
(Open Elective-II) Total Quality Management(15ME664 )	C3144	86.67	86.67	83.33	86.67	86.67		86.00
Heat Transfer Lab (15MEL67 )	C315	55.25	55.40	59.79	55.32	61.73	56.90	57.40
Modeling and Analysis Lab(FEA) (15MEL68 )	C316	76.18	73.20	66.30	64.41	64.32		68.88
Energy Engineering (15ME71 )	C401	51.52	51.46	57.77	52.12	52.30		53.03
Fluid Power Systems (15ME72 )	C402	59.66	59.67	72.45	61.25	60.66		62.74
Control Engineering (15ME73 )	C403	70.27	76.90	76.54	84.13	77.83		77.13
(Professional Elective - III) Tribology (15ME742)	C4042	74.54	85.71	75.43	71.13	70.50		75.46

(Professional Elective - III) Smart Materials & MEMS (15ME745)	C4045	85.47	85.47	88.14	85.41	89.74		86.84
(Professional Elective-IV) Automotive Electronics(15ME751)	C4051	77.07	76.65	76.70	77.07	77.07		76.91
(Professional Elective-IV) Mechatronics (15ME753)	C4053	46.80	58.73	64.36	58.83	58.57		57.46
Design Lab (15MEL76 )	C406	70.74	78.48	78.09	78.56	78.27	78.11	77.04
CIM Lab (15MEL77 )	C407	74.07	77.78	81.48	80.95	70.83	83.33	78.07
Project Phase – I (15MEP78)	C408	88.89	92.31	92.31	97.44	92.59		92.71
Operation Research(15ME81)	C409	62.06	65.90	68.50	67.16	66.13		65.95
Additive Manufacturing (15ME82)	C410	65.32	55.24	56.08	70.61	74.66		64.38
Experimental Stress analysis (15ME832)	C4112	68.69	62.76	62.57	62.9	62.75		63.93
Internship(15ME84)	C412	80.42	80.42	85.78	91.90			84.63
Project Phase – II (15ME85 )	C413	88.89	92.31	92.31	97.44	92.59		92.71
Seminar (15MES86)	C414	100	100	100	100			100.00

### 3.3 Attainment of Program Outcomes and Program Specific Outcomes (50)

Total Marks 48.00

#### 3.3.1 Describe the assessment tools and processes used for measuring the attainment of each of the Program Outcomes and Program Specific Outcomes (10)

Institute Marks : 8.00

##### PO Assessment Tools

Assessment tools are categorized into Direct and Indirect methods to assess the program educational objectives, program outcomes and course outcomes.

- Direct method displays the student's knowledge and skill for their performance in the continuous assessment tests, end–semester examinations, presentations, and classroom assignments etc. these methods provide a sampling of what students know and/or can do and provide strong evidence of student's learning.
- Indirect method such as survey and interview ask the stakeholders to reflect on student's learning. The different stake holders give opinions or thoughts to assess about the graduate's knowledge or skills.

##### Use of Rubrics for Evaluation and Assessment of POs

- The Course/Program outcomes are difficult to measure, such as assessing critical thinking, creativity, analytical skills, and problem solving etc. Hence the department has adopted Criterion Referenced Rubrics to assess the POs and COs wherever applicable. The Rubric criteria are developed by department faculty with consultation of students and distributed before an assignment, project or test.
- Rubrics are used for both formative and summative assessment of students. Rubric is used for assessing outcomes so that the faculty is able to assess student progress and maintain the record of the same for each student.
- The rubrics are shared with students before being evaluated so that they are aware of the performance criteria and their weightage.

Describe the assessment process that periodically documents and demonstrates the degree to which the Programme Outcomes are attained. Also include information on:

- Listing and description of the assessment processes used to gather the data upon which the evaluation of each of the Program outcome is based. Examples of data collection process may include, but are not limited to, specific exam questions, student portfolios, internally developed assessment exams, project presentations, national-norm exams, oral exams, focus groups, industrial advisory committee.
- The frequency with which these assessment processes are carried out.

**Table 3.3: PO Direct Assessment Methods**

PO Direct Assessment Methods		
Sl. No.	Direct Assessment Method	Description
1.	Internal Assessment Test	It is a metric to continuously assess the attainment of course outcomes, student's learning domains and thus improve the teaching –learning process. For the 2010 and 2015 Scheme, the Internal Assessment marks (CIE) in a theory paper shall be based on best two out of three tests, For 2017 and 2018 Scheme, the Internal Assessment marks (CIE) in a theory paper shall be based on average of three tests generally conducted at the end of 6 <sup>th</sup> , 10 <sup>th</sup> and 14 <sup>th</sup> weeks of each semester. An additional test may be conducted for the lateral entry students before the end of the semester.
2.	Lab Assessment Test	Lab Assessment is a metric to mainly assess student's practical knowledge with their designing capabilities .In the case of a Practical, the IA marks shall be based on the laboratory journals/reports, conduction of experiments and one practical test.

3.	Theory Semester Examination	Semester theory examinations are the metric to assess whether all the course outcomes are attained w.r.t course objectives framed by the instructor. Semester Examination is more focused on attainment of course outcomes and uses a descriptive exam.
4.	Practical Semester Examination	Practical semester examination focuses on conduction of experiments and vice-voice.
5.	Seminar	The IA marks in the case of mini projects, projects and seminars in the final year shall be based on the evaluation at the end of 8th semester by a committee consisting of the Head of the concerned Department and two senior faculty members of the Department, one of whom shall be the project / seminar guide.
6.	Project	
7.	Project Work Viva-voce	Viva-voce examination in project work shall be conducted batch-wise.
8.	Internship / Professional Practice	Viva-voce examination in internship shall be conducted batch-wise.

**Table 3.4: PO Indirect Assessment Methods**

PO Indirect Assessment Methods		
Sl. No.	Indirect Assessment Method	Description
1.	Alumni: Survey Questionnaire	Collect vivid information about program satisfaction and college from the graduate.
2.	Program Exit Survey	Collect the feedback about the program at the time of graduation.
3.	Alumni: PEO Survey Questionnaire	Collect vivid information about the program after 2 years of graduation.
4.	Course Exit Survey	Collect information from the students to assess the learning outcomes of the course at the end of the semester.
5.	Parent: Survey Questionnaire	Collect vivid information about program satisfaction and college from parents/guardians.
6.	Employer's Feedback	Collect vivid of information about the graduate skills, capabilities and opportunities.
7.	Student Feedback (About OBE)	Collect vivid of information about outcome Based education in teaching and learning process.
8.	Feedback on Facilities	Collect vivid of information about facilities within the college from students.

Program Outcome Assessment methodology, Tools and Frequency of use for Direct and Indirect method is described in the table below:

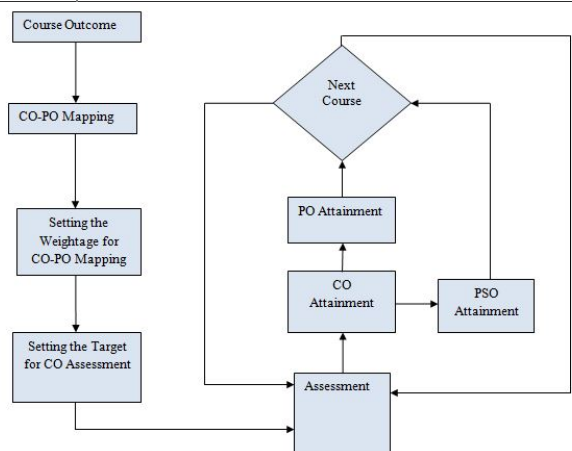
**Table 3.5: PO Assessment Methodology, Tools and Frequency of use for Direct and Indirect method**

Sl. No.	Assessment Method	Assessment frequency	Assessment Tool	In charge	Reviewer
1.	Internal Assessment Test	At the end of 6 <sup>th</sup> , 10 <sup>th</sup> and 14 <sup>th</sup> weeks of each semester.	Student's performance in internal assessment booklets.	Course owner	PAC PC/HOD
2.	Lab Assessment Test	At the end of the semester	Student's performance in conducting experiments and journal writing.	Course owner	PAC PC/HOD
3.	Theory Semester Examination	At the end of the semester	Student's performance in university exams.	University Evaluators	

Sl. No.	Assessment Method	Assessment frequency	Assessment Tool	In charge	Reviewer
1.	Program Exit Survey	Annually	Exit report from graduates	Alumni Association Committee (AAC)	IQAC
2.	Alumni: PEO Survey Questionnaire	Annually	Exit report after 2 years of graduation	Alumni Association Committee (AAC)	IQAC
3.	Parent: Survey Questionnaire	Twice in a year	Parents survey and focus discussions	Parent Coordinator	PAC PC IQAC

4.	Practical Semester Examination	At the end of the semester	Student's performance in conducting experiments during university exams.	University Evaluators		4.	Employer's Feedback	Annually	Performance report on employees	Alumni Association Committee (AAC)	AAC
						5.	Student Feedback (About OBE)	Twice in a year	Student survey	PC	IQAC
5.	Seminar	During the 8 <sup>th</sup> semester	Rubrics	Seminar Guide/Seminar Coordinator	PAC PC/HOD	6.	Feedback on Facilities	Twice in a year	Student survey	IAC	IQAC
6.	Project	During the 8 <sup>th</sup> semester	Rubrics	Project Guide/Project Coordinator	PAC PC/HOD	<p align="center"><b>Table 3.6: Process of Assessing Program Outcomes</b></p> <p>Step 1: The program coordinator analyzes each outcome into elements (different abilities specified in the outcome) and a set of attributes are defined for each element. (actions that explicitly specify mastery of the abilities specified). In addition generate well designed surveys to assess the outcome.</p> <p>Step 2: For each outcome define performance indicators (Assessment criteria) and their targets.</p> <p>Step 3: Identify / Select courses that address the outcome (each course contributes to at least one of the outcomes). Hence, each outcome is assessed in several courses to ensure that students acquire an appropriate level in terms of knowledge / skills of an outcome</p> <p>Step 4: The course owner collects the qualitative and quantitative data and uses for continual process of outcome assessment.</p> <p>Step 5: The Program Assessment Committee analyze the collected data. If the assessed data meets the performance target which are specified in <b>step 2</b>, the outcome is attained, otherwise consider <b>step 6</b></p> <p>Step 6: The Department Advisory Board recommends content delivery methods / course outcomes / curriculum improvements as needed.</p>					
7.	Project Work Viva-voce	At the end of the 8 <sup>th</sup> semester	Student's performance in university exams	University Evaluators							
8.	Internship / Professional Practice	At the end of the 8 <sup>th</sup> semester	Student's performance in university exams	University Evaluators							
9.	Course Exit Survey	Semester end	Student survey	Course Owner	CC PAC PC						
10.	Self Assessment Report	Semester end	Student survey	Course Owner	CC PAC PC						
11.	Tutorial	Semester end	Student survey	Course Owner	CC PAC PC						



**Fig. 3.2: Process of Program Outcome Assessment**



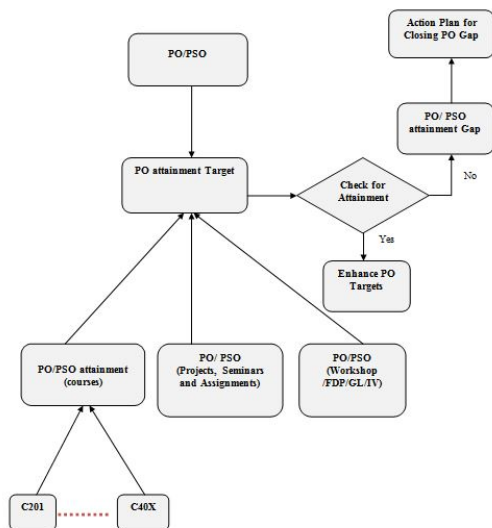


Fig. 3.3: Outlines of steps before PO / PSO Attainment

Program outcomes (PO) framed by the NBA for the academic year 2016-17, 2017-18 and 2018-19

Program outcomes (PO)

Academic year 2018 - 2019

PO Number	Programme Outcomes
PO1	<b>Engineering knowledge:</b> Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
PO2	<b>Problem analysis:</b> Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
PO3	<b>Design/development of solutions:</b> Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
PO4	<b>Conduct investigations of complex problems:</b> Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
PO5	<b>Modern tool usage:</b> Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.
PO6	<b>The engineer and society:</b> Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.
PO7	<b>Environment and sustainability:</b> Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
PO8	<b>Ethics:</b> Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
PO9	<b>Individual and team work:</b> Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
PO10	<b>Communication:</b> Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

PO11	<b>Project management and finance:</b> Demonstrate knowledge and understanding of the engineering and management principles and apply these to ones own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
PO12	<b>Life-long learning:</b> Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

PSO Number	Programme Outcomes
PSO1	Graduates are able to Design, Analyze and Develop Mechanical Systems.
PSO2	Graduates are Capable of Developing Research Skills in Self Sustainable Energy sources and Composite Materials.

### 3.3.2 Provide results of evaluation of PO&PSO (40)

Institute Marks : 40.00

#### PO Attainment

Course	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
C201	1.7	1.7	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
C202	2.7	2.15	1.44	1.44	PO5	0.9	0.9	1.8	PO9	PO10	PO11	1.8
C203	1.83	1.83	1.22	1.26	PO5	PO6	PO7	1.22	PO9	PO10	PO11	1.22
C204	1.5	1.5	1.41	1.3	PO5	PO6	PO7	1	PO9	PO10	PO11	1
C205	2.29	1.53	PO3	PO4	PO5	PO6	PO7	1.53	PO9	PO10	PO11	2.29
C206	2.78	2.59	2.49	PO4	2.19	PO6	PO7	1.99	2.24	2.98	PO11	2.98
C207	2.75	1.83	PO3	1.83	PO5	PO6	PO7	1.83	PO9	PO10	PO11	PO12
C208	2.84	1.9	PO3	PO4	PO5	PO6	PO7	1.9	PO9	PO10	PO11	1.9
C209	1.52	1.52	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
C210	2.88	2.88	2.88	2.46	1.93	PO6	PO7	1.92	PO9	PO10	PO11	1.92
C211	1.83	1.83	0.6	PO4	PO5	1.09	PO7	1.22	PO9	PO10	PO11	1.09
C212	2.42	2.42	1.01	0.8	0.81	PO6	PO7	1.62	PO9	PO10	PO11	1.22
C213	2.62	1.75	PO3	PO4	PO5	PO6	PO7	1.75	PO9	PO10	PO11	2.62
C214	2.54	1.69	1.69	1.69	PO5	PO6	PO7	1.43	PO9	PO10	PO11	1.43
C215	2.99	2.99	2	2.39	2.2	PO6	PO7	PO8	PO9	PO10	PO11	1
C216	2.53	PO2	PO3	PO4	PO5	1.69	PO7	0.85	1.69	PO10	PO11	2.53
C301	1.75	1.77	1.97	PO4	PO5	PO6	PO7	1.92	PO9	PO10	1.77	1.75
C302	2.13	2.28	2.28	1.98	PO5	PO6	PO7	1.52	PO9	PO10	PO11	1.14
C303	1.33	1.33	1.33	0.89	PO5	PO6	PO7	0.89	PO9	PO10	PO11	0.89
C304	1.37	1.19	1.28	PO4	PO5	PO6	PO7	0.92	PO9	PO10	PO11	1.1
C3053	PO1	PO2	PO3	PO4	PO5	2.49	PO7	2.49	2.87	2.68	2.49	2.68
C3054	2.94	1.96	1.96	PO4	1.96	PO6	PO7	1.96	PO9	PO10	PO11	1.96
C3062	2.67	1.75	PO3	PO4	PO5	2.13	2.31	1.78	PO9	PO10	PO11	1.78
C307	2.99	1.99	PO3	PO4	PO5	PO6	PO7	PO8	1.99	1.99	PO11	1.99
C308	2.91	2.91	PO3	PO4	PO5	1.94	1.94	PO8	1.94	1.94	PO11	1.94
C309	1.77	2.04	2.04	1.9	PO5	PO6	PO7	1.36	PO9	PO10	PO11	1.19
C310	1.41	1.4	1.06	1.06	2.64	PO6	PO7	1.76	PO9	PO10	PO11	1.76
C311	2.14	2.14	1.43	1	PO5	PO6	PO7	1.43	PO9	PO10	PO11	1.43
C312	1.6	1.6	1.6	1.07	1.17	PO6	PO7	1.07	1.07	PO10	PO11	1.07
C3133	2.78	1.85	PO3	PO4	1.88	PO6	PO7	1.85	PO9	PO10	PO11	2.78

C3142	2.87	1.91	1.91	PO4	PO5	2.87	2.3	1.91	PO9	PO10	1.92	1.91
C3144	PO1	PO2	PO3	PO4	PO5	2	PO7	3	3	3	PO11	2
C315	2.99	1.99	PO3	PO4	PO5	PO6	1	1.99	PO9	PO10	PO11	1
C316	1.49	1.99	1.99	2.39	2.19	PO6	PO7	1.99	PO9	PO10	PO11	PO12
C401	2.58	1.7	PO3	PO4	PO5	0.86	0.86	1.72	PO9	PO10	PO11	1.89
C402	2.1	1.91	2.22	1.91	1.91	PO6	PO7	1.91	PO9	PO10	PO11	1.91
C403	2.88	2.68	2.68	2.4	1.92	1.91	1.92	1.92	PO9	PO10	PO11	1.92
C4042	2.56	2.56	2.49	2.64	PO5	1.95	PO7	1.97	PO9	PO10	PO11	1.97
C4045	2.88	2.88	2.88	2.88	PO5	PO6	PO7	1.92	PO9	PO10	PO11	PO12
C4051	2.6	PO2	2.6	PO4	PO5	PO6	PO7	1.73	PO9	PO10	PO11	PO12
C4053	1.72	1.68	1.14	PO4	2.54	PO6	PO7	1.91	PO9	PO10	PO11	1.91
C406	2.81	2.64	2.31	2.81	1.98	PO6	PO7	PO8	PO9	PO10	PO11	1.98
C407	2.67	2.17	2.2	2.67	3	PO6	PO7	2	PO9	2	PO11	2
C408	3	3	2.75	3	3	2	2.2	3	3	3	2.25	3
C409	2.58	2.58	2.58	1.72	1.72	1.72	PO7	1.72	0.85	PO10	2.15	1.72
C410	2.31	1.6	1.92	1.35	2.51	PO6	1.97	1.94	PO9	PO10	PO11	1.94
C4112	1.88	1.88	2.07	PO4	PO5	PO6	PO7	1.88	PO9	PO10	PO11	1.88
C412	2.9	2.9	1.93	PO4	1.93	2.17	2.25	2.41	2.9	2.9	1.93	2.9
C413	3	3	2.75	3	3	2	2.2	3	3	3	2.25	3
C414	3	3	PO3	PO4	PO5	PO6	3	3	3	3	PO11	3

**PO Attainment Level**

Course	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO Attainment	2.40	2.12	1.97	1.92	2.10	1.83	1.87	1.83	2.27	2.60	2.08	1.88
Direct Attainment	2.38	2.10	1.94	1.91	2.13	1.85	1.90	1.82	2.30	2.65	2.11	1.87
InDirect Attainment	2.48	2.21	2.07	1.98	2	1.73	1.76	1.88	2.14	2.38	1.95	1.93

**PSO Attainment**

Course	PSO1	PSO2
C201	PSO1	PSO2
C202	0.9	2.7
C203	PSO1	1.24
C204	1	1.1
C205	PSO1	0.76
C206	2.39	PSO2
C207	PSO1	2.75
C208	1.9	1.9
C209	PSO1	PSO2
C210	2.88	1.92
C211	PSO1	0.76
C212	PSO1	1.22
C213	PSO1	1.75
C214	1.69	1.69
C215	2.59	1.8
C216	PSO1	1.35
C301	PSO1	PSO2

C302	1.82	1.52
C303	PSO1	0.89
C304	1.37	0.92
C3053	PSO1	PSO2
C3054	0.98	1.96
C3062	PSO1	0.89
C307	PSO1	PSO2
C308	PSO1	PSO2
C309	1.5	1.63
C310	0.88	PSO2
C311	PSO1	1.43
C312	1.07	1.07
C3133	PSO1	1.85
C3142	1.53	1.53
C3144	PSO1	PSO2
C315	1.16	1.33
C316	2.29	2.19
C401	PSO1	PSO2
C402	2.1	PSO2
C403	2.68	1.92
C4042	2.22	PSO2
C4045	PSO1	PSO2
C4051	PSO1	PSO2
C4053	1.53	PSO2
C406	1.98	1.98
C407	2.5	PSO2
C408	3	3
C409	1.72	1.71
C410	1.68	PSO2
C4112	PSO1	PSO2
C412	1.93	PSO2
C413	3	3
C414	3	3

**PSO Attainment Level**

Course	PSO1	PSO2
CO Attainment	1.90	1.72
Direct Attainment	1.90	1.70
InDirect Attainment	1.92	1.82

4 STUDENTS' PERFORMANCE (150)

Total Marks 78.86

Table 4.1

Item (Information to be provided cumulatively for all the shifts with explicit headings, wherever applicable)	2018-19 (CAY)	2017-18 (CAYm1)	2016-17(CAYm2)	2015-16(CAYm3)	2014-15(CAYm4)	2013-14 (CAYm5)	2012-13 (CAYm6)
Sanctioned intake of the program(N)	120	120	120	120	120	120	120
Total number of students admitted in first year minus number of students migrated to other programs/ institutions plus No. of students migrated to this program (N1)	65	87	96	111	112	116	126
Number of students admitted in 2nd year in the same batch via lateral entry (N2)	0	53	48	47	29	36	37
Separate division students, If applicable (N3)	6	5	6	6	6	6	6
Total number of students admitted in the programme(N1 + N2 + N3)	71	145	150	164	147	158	169

Table 4.2

Year of entry	Total No of students admitted in the program (N1 + N2 + N3)	Number of students who have successfully graduated without backlogs in any semester/ year of study (Without Backlog means no compartment or failures in any semester/ year of study)			
		I year	II year	III year	IV year
2018-19 (CAY)	71	0	0	0	0
2017-18 (CAYm1)	145	35	0	0	0
2016-17 (CAYm2)	150	39	35	0	0
2015-16 (CAYm3)	164	36	19	15	0
2014-15 (LYG)	147	41	35	30	29
2013-14 (LYGm1)	158	57	36	25	24
2012-13 (LYGm2)	169	43	42	36	35

Table 4.3

Year of entry	Total No of students admitted in the program (N1 + N2 + N3)	Number of students who have successfully graduated in stipulated period of study) [Total of with Backlog + without Backlog]			
		I year	II year	III year	IV year
2018-19 (CAY)	71	0	0	0	0
2017-18 (CAYm1)	145	74	0	0	0
2016-17 (CAYm2)	150	83	91	0	0
2015-16 (CAYm3)	164	90	79	79	0
2014-15 (LYG)	147	82	102	102	102
2013-14 (LYGm1)	158	72	91	91	91
2012-13 (LYGm2)	169	53	60	60	60

## 4.1 Enrolment Ratio (20)

Total Marks 14.00

Institute Marks : 14.00

	N (From Table 4.1)	N1 (From Table 4.1)	Enrollment Ratio [(N1/N)*100]
2018-19 (CAY)	120	65	54.17
2017-18 (CAYm1)	120	87	72.50
2016-17 (CAYm2)	120	96	80.00

Average [(ER1 + ER2 + ER3) / 3] : 68.89

Assessment : 14.00

## 4.2 Success Rate in the stipulated period of the program (40)

Total Marks 12.90

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

Institute Marks : 4.75

Item	Latest Year of Graduation, LYG (2014-15)	Latest Year of Graduation minus 1, LYGm1 (2013-14)	Latest Year of Graduation minus 2 LYGm2 (2012-13)
X Number of students admitted in the corresponding First year + admitted in 2nd year via lateral entry and seperated division, if applicable	147.00	158.00	169.00
Y Number of students who have graduated without backlogs in the stipulated period	29.00	24.00	35.00
Success Index [ SI = Y / X ]	0.20	0.15	0.21

Average SI [ (SI1 + SI2 + SI3) / 3 ] : 0.19

Assessment [25 \* Average SI] : 4.75

**4.2.2 Success rate in stipulated period (15)**

Institute Marks : 8.15

Item	Latest Year of Graduation, LYG (2014-15)	Latest Year of Graduation minus 1, LYGm1 (2013-14)	Latest Year of Graduation minus 2 LYGm2 (2012-13)
X Number of students admitted in the corresponding First year + admitted in 2nd year via lateral entry and seperated division, if applicable	147.00	158.00	169.00
Y Number of students who have graduated in the stipulated period	102.00	91.00	60.00
Success Index [ SI = Y / X ]	0.69	0.58	0.36

Average SI [ ( SI1 + SI2 + SI3) / 3 ]: 0.54

Assessment [15 \* Average SI] : 8.15

**Note** : If 100% students clear without any backlog then also total marks scored will be 40 as both 4.2.1 & 4.2.2 will be applicable simultaneously.

**4.3 Academic Performance in Third Year (15)**

Total Marks 10.28

Institute Marks : 10.28

Academic Performance	CAYm3 (2015-16)	LYG (2014-15)	LYGm1 (2013-14)
Mean of CGPA or mean percentage of all successful students(X)	7.09	6.91	6.56
Total number of successful students(Y)	79.00	102.00	91.00
Totalnumber of students appeared in the examination(Z)	79.00	102.00	91.00
API [ X*(Y/Z) ]:	7.09	6.91	6.56

Average API [ (AP1 + AP2 + AP3)/3 ] : 6.85

Assessment [1.5 \* AverageAPI] : 10.28

**4.4 Academic Performance in Second Year (15)**

Total Marks 7.48

Institute Marks : 7.48

Academic Performance	CAYm2 (2016-17)	CAYm3 (2015-16)	LYG (2014-15)
Mean of CGPA or mean percentage of all successful students(X)	6.82	7.06	6.76
Total number of successful students (Y)	91.00	79.00	102.00
Total number of students appeared in the examination (Z)	155.00	110.00	117.00
API [ X * (Y/Z) ]	4.00	5.07	5.89

Average API [ (AP1 + AP2 + AP3)/3 ] : 4.99

Assessment [ 1.5 \* AverageAPI ] : 7.48

**4.5 Placement, Higher Studies and Entrepreneurship (40)**

Total Marks 21.20

Institute Marks : 21.20

Item	LYG (2014-15)	LYGm1 (2013-14)	LYGm2 (2012-13)
Total No of Final Year Students(N)	102.00	91.00	60.00
No of students placed in the companies or government sector(X)	40.00	38.00	31.00
No of students admitted to higher studies with valid qualifying scores(GATE or equivalent State or National Level tests, GRE, GMAT etc.) (Y)	4.00	4.00	5.00
No of students turned entrepreneur in engineering/technology (Z)	2.00	1.00	4.00
x + y + z =	46.00	43.00	40.00
Placement Index [ (X+Y+Z)/N ] :	0.45	0.47	0.67

Average Placement [ (P1 + P2 + P3)/3 ] : 0.53

Assessment [ 40 \* Average Placement ] : 21.20

**Program Name :**

**Assessment Year Name : CAYm1**

S.No	Student Name	Enrollment No	Employee Name	Appointment No
1	YERRISWAMY. B	3VC14ME125	TCS BANGALORE	1
2	M. VADIRAJ BHARADWAJ	3VC14ME046	TCS BANGALORE	2
3	KARTHIK.K	3VC14ME040	TCS BANGALORE	3
4	JOSEPHKIRAN. REDDY K	3VC14ME036	TCS BANGALORE	4
5	ARIF.S	3VC15ME403	TCS BANGALORE	5
6	VACHAN.A.M	3VC14ME115	TCS BANGALORE	6
7	SAIKRISHNAL	3VC14ME091	TCS BANGALORE	7
8	NITISH.B	3VC14ME065	TCS BANGALORE	8
9	DEEKSHIT.K	3VC14ME044	TCS BANGALORE	9
10	KUBENDRAREDDY.T	3VC14ME043	TCS BANGALORE	10
11	SAMEER.F	3VC14ME093	TCS BANGALORE	11
12	HANDI THUFIQ	3VC14ME033	VEE TECHNOLOGIES	12
13	MD AMIR SOHAIL.S	3VC14ME053	VEE TECHNOLOGIES	13
14	KARTHIK REDDY N	3VC14ME041	PINCLICK	14
15	NITHIN G	3VC14ME064	PINCLICK	15
16	VASU DEV	3VC14ME116	PINCLICK	16
17	K.PRAJWAL	3VC14ME038	PINCLICK	17
18	RCA VINAYAKA	3VC14ME074	PINCLICK	18
19	SHIVARUDRA K	3VC14ME104	SRIRAM TRANSPORT FINANCE,CHENNAI	19
20	RAKESH NAYAKA DH	3VC14ME081	SRIRAM TRANSPORT FINANCE,CHENNAI	20
21	SACHIN T	3VC14ME089	SRIRAM TRANSPORT FINANCE, CHENNAI	21
22	SHARANA BASAVA M	3VC14ME100	SRIRAM TRANSPORT FINANCE, CHENNAI	22
23	RAVI	3VC14ME086	SRIRAM TRANSPORT FINANCE, CHENNAI	23
24	G NITHIN KUMAR	3VC14ME025	COLLABERA	24
25	A RAGHAVENDRA	3VC14ME001	COLLABERA	25
26	M GURU TEJA	3VC15ME410	RIVIGO	26
27	KRISHNA MURTHY	3VC14ME042	RIVIGO	27
28	B SHREYAS	3VC14ME017	RIVIGO	28
29	SANDEEPKUMAR H G	3VC14ME096	BMM	29
30	RAMANJANEYA	3VC14ME082	BMM	30
31	VINOD KUMAR N R	3VC14ME122	BMM	31
32	AKHIL KUMAR S	3VC14ME004	BMM	32
33	DIWAKAR REDDY J	3VC14ME022	BMM	33
34	PRATHAP KUMAR D T	3VC14ME072	CMSIT SERVICES BANGLORE	34
35	MONITH SHAH K	3VC14ME059	SLK	35
36	MANJUNATHA	3VC14ME049	[24]7.AI	36
37	MANI MOHAN R	3VC14ME047	QSPIDERS	37
38	TEJASAI P	3VC14ME113	PATH FRONT	38
39	RAKESH GY	3VC15ME434	HALLEYS BLUE	39
40	SIDDESHA OLI	3VC14ME106	HALLEYS BLUE	40
41	GIREESH AGRAHARA K S	3VC14ME028	MTECH-VTU UNIVERSITY	41
42	MD.MUSHTAQ	3VC14ME056	MTECH-PESIT BANGALORE	42
43	VINAYKUMAR J	3VC14ME120	MTECH-VIT VELLORE	43
44	ABHISHEK BR	3VC14ME003	MBA-MS RAMAIAH BANGALORE	44

Assessment Year Name : CAYm2



S.No	Student Name	Enrollment No	Employee Name	Appointment No
1	CHEZHAN G R	3VC13ME019	TCS,BANGALORE	1
2	A PRATAP CHOUDARI	3VC13ME001	TCS,BANGALORE	2
3	ABHISHEK	3VC14ME400	TCS,BANGALORE	3
4	MOHAMMED YASIN A	3VC13ME063	TCS,BANGALORE	4
5	N B PRUTHVIRAJ	3VC13ME065	TCS,BANGALORE	5
6	MALLIKARJUN M C	3VC13ME053	TCS,BANGALORE	6
7	PRAVEEN PALTURU	3VC13ME081	TCS,BANGALORE	7
8	SANDEEP V M	3VC13ME095	SILVERPEAK GLOBAL,JAPAN	8
9	RAGHAVENDRA E P	3VC13ME086	SILVERPEAK GLOBAL,JAPAN	9
10	DEEPAK D JITURI	3VC13ME020	SILVERPEAK GLOBAL,JAPAN	10
11	G DODDABASAVA	3VC13ME025	SILVERPEAK GLOBAL,JAPAN	11
12	PARASHURAM N	3VC13ME072	SILVERPEAK GLOBAL,JAPAN	12
13	MUTHAPPA	3VC13ME064	SILVERPEAK GLOBAL,JAPAN	13
14	ABDUL MUJAHEED	3VC13ME002	CMSIT SERVICES,BANGLORE	14
15	M BHEEMANA GOUDA	3VC13ME052	CMSIT SERVICES,BANGLORE	15
16	NITHIN KUMAR M	3VC13ME071	CMSIT SERVICES,BANGLORE	16
17	SAI ESHWAR REDDY E N	3VC13ME091	CMSIT SERVICES,BANGLORE	17
18	SHIVAKUMAR R BARKAR	3VC13ME104	CMSIT SERVICES,BANGLORE	18
19	SYED RASOOL	3VC13ME112	CMSIT SERVICES,BANGLORE	19
20	T BHARAT KUMAR	3VC13ME114	CMSIT SERVICES,BANGLORE	20
21	ADITHYA NAYAK U	3VC13ME005	CMSIT SERVICES,BANGLORE	21
22	N ROHITH	3VC13ME067	SRIRAM TRANSPORT FINANCE,CHENNAI	22
23	BASAVARAJA N	3VC14ME404	SRIRAM TRANSPORT FINANCE,CHENNAI	23
24	SUJITH KUMAR Y	3VC13ME109	SRIRAM TRANSPORT FINANCE,CHENNAI	24
25	LAXMAN RAO CHANDRAANTH	3VC13ME050	TECH MAHINDRA,CHENNAI	25
26	ANIL KUMAR GT	3VC13ME011	TECH MAHINDRA,CHENNAI	26
27	SANTHOSH H	3VC13ME097	TECH MAHINDRA,CHENNAI	27
28	NAGARAJA G	3VC14ME412	TECH MAHINDRA,CHENNAI	28
29	S SANJEEV KUMAR	3VC13ME089	TECH MAHINDRA,CHENNAI	29
30	SANATH KUMAR J	3VC13ME092	TECH MAHINDRA,CHENNAI	30
31	DEEPAK.P	3VC13ME021	TECH MAHINDRA,CHENNAI	31
32	PAVAN KUMAR K	3VC13ME073	TECH MAHINDRA,CHENNAI	32
33	SHAIK MOHAMAD FAROOQ	3VC13ME101	TECH MAHINDRA,CHENNAI	33
34	VEERABHADRAPPA	3VC13ME118	TECH MAHINDRA,CHENNAI	34
35	VISWA PRASAD A P	3VC13ME125	TECH MAHINDRA,CHENNAI	35
36	GAJULA DINESH BABU	3VC13ME026	SLK	36
37	RIJO SUNNY	3VC13ME088	DRDO HYDERABAD	37
38	KURUBARA JADEPPA	3VC13ME048	I SEVEN BENGALURU	38
39	MD NAZIM SHAIK K	3VC13ME055	M.Tech-RYMEC BELLARY	39
40	JAYKUMAR.S	3VC13ME039	POST DIPLOMA IN INDUSTRIAL SAFETY COURSE. JSW STEEL TORANAGALLU	40
41	K SANJEEVA	3VC13ME042	POST DIPLOMA IN INDUSTRIAL SAFETY COURSE. JSW STEEL TORANAGALLU	41
42	K HANUMANTHA	3VC13ME041	POST DIPLOMA IN INDUSTRIAL SAFETY COURSE. JSW STEEL TORANAGALLU	42

Assessment Year Name : CAYm3

S.No	Student Name	Enrollment No	Employee Name	Appointment No
1	MANOJ Y	3VC12ME056	TCS,BANGALORE	1
2	WUKKADADA PAWANKUMAR	3VC12ME122	TCS,BANGALORE	2
3	SYED MD AFZAL	3VC12ME106	TCS,BANGALORE	3
4	ANGADI VARUN KUMAR	3VC12ME006	TCS,BANGALORE	4
5	VEERESH	3VC12ME112	TCS,BANGALORE	5
6	AN DATTA	3VC12ME001	TCS,BANGALORE	6
7	VINAYAKA BELUR	3VC12ME119	TCS,BANGALORE	7
8	NAVEEN KUMAR K.S	3VC12ME069	TCS,BANGALORE	8
9	IMAME JAFAR SADIK D.H	3VC12ME034	TCS,BANGALORE	9
10	RAJA KUMAR	3VC12ME080	TCS,BANGALORE	10
11	MD INTHIAZ H	3VC12ME061	TCS,BANGALORE	11
12	N ANAND REDDY	3VC12ME066	PHOENIX SEA SERVICES	12
13	MALLIKARJUNA K	3VC13ME416	PHOENIX SEA SERVICES	13
14	MD.SHOIAB ASHRAFI	3VC12ME059	PHOENIX SEA SERVICES	14
15	K BASAVARAJ	3VC12ME014	PHOENIX SEA SERVICES	15
16	SOURAB KADADI Y	3VC12ME101	PHOENIX SEA SERVICES	16
17	SIDDESH KUMAR K	3VC12ME099	GOOD THROUGH	17
18	VENUGOPAL C	3VC13ME434	FKL INDIA PVT LTD	18
19	LAKSHMANA NAIKA L	3VC12ME051	POMPEII	19
20	SATYANARAYANA .M	3VC12ME092	POMPEII	20
21	DILEEP NAGESHAPPA G	3VC12ME025	POMPEII	21
22	SHIVARAJA N	3VC12ME097	POMPEII	22
23	KHAJA FAREEN TAJ	3VC13ME411	POMPEII	23
24	ANOOP KUMAR S C	3VC12ME007	JSW TORANNAGALLU	24
25	AKASH N K	3VC12ME004	JSW TORANNAGALLU	25
26	TIPPESWAMY.U	3VC12ME107	BHUWALKA PIPES	26
27	INAYATULLA	3VC12ME035	YANTRA DIGITAL SERVICES	27
28	H M SHRAVAN	3VC12ME098	LIINDE INDIA KOLKATA	28
29	PRAMOD S	3VC12ME074	SRI SAI MADHU ENGINEERING SERVICE BALLARI	29
30	MEHEBOOB BASHA B	3VC12ME057	BMM HOSPET	30
31	AVINASH B.S	3VC12ME010	UNISOFT CHITRADURGA	31
32	DIWAKAR REDDY G	3VC12ME026	MBA-BANGALORE UNIVERSITY	32
33	B.VIJAYAKUMARA	3VC12ME011	M.Tech, BITM BELLARY	33
34	MANJUNATH U	3VC12ME055	M.Tech,UBDT DAVANGERE	34
35	MD IBRAHIM B	3VC12ME063	M.Tech,UBDT DAVANGERE	35
36	PRAKASH PATIL	3VC12ME073	MBA, RV COLLEGE BANGALORE	36

**4.6 Professional Activities (20)**

**4.6.1 Professional societies/ chapters and organizing engineering events (5)**

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

Total Marks 13.00

Institute Marks :

Institute Marks : 3.00

The Details of department News letter "YANTRIKA" are as follows:

Sl. No	Volume	Issue	Duration
1	01	01	Feb 2015- Jul 2015
2	02	01	Aug 2015- Jan 2016
3	03	02	Feb 2016- Jul 2016
4	04	01	Aug 2016- Jan 2017
5	05	01	Feb 2017- Jul 2017
6	06	01	Aug 2017- Jan 2018
7	07	02	Feb 2018- Jul 2018
8	08	01	Aug 2018- Jan 2019
9	09	01	Feb 2019- Jul 2019
10	10	01	Aug 2019- Jan 2020

#### 4.6.3 Participation in inter-institute events by students of the program of study (10)

Institute Marks : 10.00

The following are the details of Students participated in inter-Institute events are listed below:

Sl. No.	Name of the Student	Event Name	Venue	Date & Year
1	S Akhil Kumar	Paper Presentation in Conference on Non Conventional Energy Sources	KLEIT, Hubballi	15 <sup>th</sup> Sept 2016
2	Akhil Kumar	National Level Student Technical Fest Advitya 2016	KLEIT, Hubballi	23rd & 24th September 2016
3	Abhishek B R	Internship / Automotive Styling Boot Camp	JSSATE, Bengaluru	14th – 21st January 2017
4	B Shreyas	Internship / Automotive Styling Boot Camp	JSSATE, Bengaluru	14th – 21st January 2017
5	Akhil Kumar S	Internship / Automotive Styling Boot Camp	JSSATE, Bengaluru	14th – 21st January 2017
6	Sanatha Kumar C M	Internship / Automotive Styling Boot Camp	JSSATE, Bengaluru	14th – 21st January 2017
7	Vachan A M	Internship / Automotive Styling Boot Camp	JSSATE, Bengaluru	14th – 21st January 2017
8	Sachin T	Internship / Automotive Styling Boot Camp	JSSATE, Bengaluru	14th – 21st January 2017
9	Suraj Kashyap T R	Internship / Automotive Styling Boot Camp	JSSATE, Bengaluru	14th – 21st January 2017
10	Rajshekar M	Internship / Automotive Styling Boot Camp	JSSATE, Bengaluru	14th – 21st January 2017
11	Vinod Kumar N R	Internship / Automotive Styling Boot Camp	JSSATE, Bengaluru	14th – 21st January 2017
12	Nitish B	Internship / Automotive Styling Boot Camp	JSSATE, Bengaluru	14th – 21st January 2017
13	Kasa Sujith Kumar	Lathe Craft	A national Level Students Technical Symposium DYNAMECHS 2018, JNTU College of Engineering, Ananthapuramu, AP, India.	28th - 29th March 2018

14	Raja Vikram	Lathe Craft	A national Level Students Technical Symposium DYNAMECHS 2018, JNTU College of Engineering, Ananthapuramu, AP, India.	28th - 29th March 2018
15	Kasa Sujith Kumar	Industrial Automation & Robotics	A national Level Students Technical Symposium DYNAMECHS 2018, JNTU College of Engineering, Ananthapuramu, AP, India.	28th - 29th March 2018
16	G Doddana Gouda	Industrial Automation & Robotics	A national Level Students Technical Symposium DYNAMECHS 2018, JNTU College of Engineering, Ananthapuramu, AP, India.	28th - 29th March 2018
17	Raja Vikram	Industrial Automation & Robotics	A national Level Students Technical Symposium DYNAMECHS 2018, JNTU College of Engineering, Ananthapuramu, AP, India.	28th - 29th March 2018
18	Sunanda N	Industrial Automation & Robotics	A national Level Students Technical Symposium DYNAMECHS 2018, JNTU College of Engineering, Ananthapuramu, AP, India.	28th - 29th March 2018
19	Manoj Kumar AS	Industrial Automation & Robotics	A national Level Students Technical Symposium DYNAMECHS 2018, JNTU College of Engineering, Ananthapuramu, AP, India.	28th - 29th March 2018
20	Hasansab	Industrial Automation & Robotics	A national Level Students Technical Symposium DYNAMECHS 2018, JNTU College of Engineering, Ananthapuramu, AP, India.	28th - 29th March 2018
21	H Akshat Kumar	Industrial Automation & Robotics	A national Level Students Technical Symposium DYNAMECHS 2018, JNTU College of Engineering, Ananthapuramu, AP, India.	28th - 29th March 2018
22	G Shridevi	Tech Quiz	A national Level Students Technical Symposium DYNAMECHS 2018, JNTU College of Engineering, Ananthapuramu, AP, India.	28th - 29th March 2018
23	Manoj Kumar AS	Tech Quiz	A national Level Students Technical Symposium DYNAMECHS 2018, JNTU College of Engineering, Ananthapuramu, AP, India.	28th - 29th March 2018
24	B Malli	Tech Quiz	A national Level Students Technical Symposium DYNAMECHS 2018, JNTU College of Engineering, Ananthapuramu, AP, India.	28th - 29th March 2018
25	G Shridevi	Technion	A national Level Students Technical Symposium DYNAMECHS 2018, JNTU College of Engineering, Ananthapuramu, AP, India.	28th - 29th March 2018
26	H Akshat Kumar	Technion	A national Level Students Technical Symposium DYNAMECHS 2018, JNTU College of Engineering, Ananthapuramu, AP, India.	28th - 29th March 2018
27	K Chaitra	Technion	A national Level Students Technical Symposium DYNAMECHS 2018, JNTU College of Engineering, Ananthapuramu, AP, India.	28th - 29th March 2018
28	Akshay Kumar	Technion	A national Level Students Technical Symposium DYNAMECHS 2018, JNTU College of Engineering, Ananthapuramu, AP, India.	28th - 29th March 2018

29	Hasansab	Techwar	A national Level Students Technical Symposium DYNAMECHS 2018, JNTU College of Engineering, Ananthapuramu, AP, India.	28th - 29th March 2018
30	Manoj Kumar	Techwar	A national Level Students Technical Symposium DYNAMECHS 2018, JNTU College of Engineering, Ananthapuramu, AP, India.	28th - 29th March 2018
31	Manoj Kumar	Tecrity	A national Level Students Technical Symposium DYNAMECHS 2018, JNTU College of Engineering, Ananthapuramu, AP, India.	28th - 29th March 2018
32	G Doddana Gouda	Tecrity	A national Level Students Technical Symposium DYNAMECHS 2018, JNTU College of Engineering, Ananthapuramu, AP, India.	28th - 29th March 2018
33	Karthik K	International Design Competition 2018	CADD Centre Ballari	Sept-Nov 2018
34	Ranganath Desai	Terranaut-XI	KLETU- Hubballi	16th March 2019
35	Nafeesa Begum	Smart trash	Innovision 2019 PDIT HOSAPETE	3rd April 2019
36	Karthik K	Smart trash	Innovision 2019 PDIT HOSAPETE	3rd April 2019
37	Ashwini Kurubara	Smart trash	Innovision 2019 PDIT HOSAPETE	3rd April 2019
38	Shekar B	Smart trash	Innovision 2019 PDIT HOSAPETE	3rd April 2019
39	Shivakumar B	Smart trash	Innovision 2019 PDIT HOSAPETE	3rd April 2019
40	Ranganath Desai	Gesture Control Pick And Place Robot	Innovision 2019 PDIT HOSAPETE	3rd April 2019
41	Nafeesa Begum	Smart trash	3rd State Level Prjoection Exhibition 2k19 Dept of CSE Rymec Ballari	12th -13th April 2019
42	Karthik K	Smart trash	4th State Level Prjoection Exhibition 2k19 Dept of CSE Rymec Ballari	12th -13th April 2019
43	Ashwini Kurubara	Smart trash	5th State Level Prjoection Exhibition 2k19 Dept of CSE Rymec Ballari	12th -13th April 2019
44	Shekar B	Smart trash	6th State Level Prjoection Exhibition 2k19 Dept of CSE Rymec Ballari	12th -13th April 2019
45	Shivakumar B	Smart trash	7th State Level Prjoection Exhibition 2k19 Dept of CSE Rymec Ballari	12th -13th April 2019
46	Ranganath Desai	Gesture Control Pick And Place Robot	8th State Level Prjoection Exhibition 2k19 Dept of CSE Rymec Ballari	12th -13th April 2019
47	Ranganath Desai	4th National Level Project Competition "IEEE Project Expo - 2019"	GSSSIETW- Mysore	29th April 2019
48	Ranganath Desai	LEAD LEADership Program	Deshpande Foundation, India	15th – 24th July 2019
49	Raghuveera K	Engine assembly quiz	Advitya- 2019 National Level Student Technical Fest, KLEIT Hubballi	20th -21st Sep 2019
50	Ranganath Desai	STORM Workshop	Mysore	21st -22nd Sep 2019

The following are the details of Students participated in Extra curricular events are listed below:

Sl. No.	Name of the Student	International / National / VTU	Event Name	Venue	Date & Year
1	Sai Krishna L	VTU	Hockey	BLDEASCET, Bijapur	24 <sup>th</sup> Aug to 1 <sup>st</sup> Sep 2016
2	Gowni Jayachandra reddy	VTU	Hockey		
3	Md. Ajmal S	VTU	Cricket Soft Ball Tournament	NIEIT, Mysuru	9 <sup>th</sup> & 10 <sup>th</sup> October 2019
4	Sampath Kumar Y M	VTU	Cricket Soft Ball Tournament		
5	Jadadish N	VTU	Cricket Soft Ball Tournament		
6	Vishal Kumar Soni	VTU	Cricket Soft Ball Tournament		
7	Vamshi J	VTU	Basket Ball	BITM, Ballari	15 <sup>th</sup> & 16 <sup>th</sup> September 2019
8	B Akhil Chowdary	VTU	Basket Ball		
9	Ranga Sai	VTU	Basket Ball		
10	Khushwanth Sai Kumar K	VTU	Basket Ball		
11	Rahul R	VTU	Basket Ball		
12	Rahul R	VTU	Basket Ball	RYMEC, Ballari	1 <sup>st</sup> & 2 <sup>nd</sup> October 2017
13	Ranga Sai	VTU	Basket Ball		
14	Khushwanth Sai Kumar K	VTU	Basket Ball		
15	Sanjeev	VTU	Shuttle Badminton	RYMEC, Ballari	21 <sup>st</sup> to 26 <sup>th</sup> September 2016

5 FACULTY INFORMATION AND CONTRIBUTIONS (200)

Total Marks 177.09

Institute Marks :

Name	PAN No.	University Degree	Date of Receiving Degree	Area of Specialization	Research Paper Publications	Ph.D Guidance	Faculty receiving Ph.D during the assessment year	Current Designation	Date (Designated as Prof/Assoc. Prof.).	Initial Date of Joining	Association Type	At present working with the Institution(Yes/No)	In case of NO, Date of Leaving	IS HOD?
Dr.KORI NAGARAJ	AARPN2587N	ME/M. Tech and PhD	07/12/2013	FRACTURE MECHANICS	12	4	0	Professor	07/12/2013	01/09/1992	Regular	Yes		Yes
Dr. K VEERESH	ACXPK9025G	ME/M. Tech and PhD	02/12/2009	PRODUCTION MANAGEMENT	15	2	00	Professor	25/08/2005	15/07/1985	Regular	Yes		No
Dr. HIREGOUDAR YERRANNA GOUDARU	AAMPY1501E	ME/M. Tech and PhD	27/08/2011	THERMAL POWER ENGINEERING	80	8	2	Professor	11/08/2011	01/09/1992	Regular	Yes		No
Dr. C THOTAPPA	AARPT7980P	ME/M. Tech and PhD	03/02/2012	SUPPLY CHAIN MANAGEMENT	31	5	0	Professor	08/04/2013	08/04/2013	Regular	Yes		No
Dr. G JAGANNATH REDDY	ADVPR6208B	ME/M. Tech and PhD	09/05/2015	MATERIAL SCIENCE	13	0	0	Professor	15/06/2015	15/02/1992	Regular	Yes		No
Dr. SHIV KUMAR MODI	ABQPM2327P	ME/M. Tech and PhD	28/12/2016	THERMAL POWER ENGINEERING	8	0	0	Professor	01/11/2016	01/09/1992	Regular	Yes		No
Dr. S P JAGADISH	CGNPS8394E	ME/M. Tech and PhD	18/07/2018	COMPOSITE MATERIALS	20	0	0	Associate Professor	01/12/2018	01/09/2010	Regular	Yes		No
Dr. K MANJUNATH	AVQPM8670B	ME/M. Tech and PhD	21/09/2017	THERMAL POWER ENGINEERING	40	0	0	Associate Professor	01/12/2018	02/08/2010	Regular	Yes		No

M R INDHUDAR	AACPI3902R	M.E/M.Tech	02/12/1991	THERMAL POWER ENGINEERING	6	0	0	Assistant Professor		12/02/1990	Regular	Yes		No
SHIVAMANAPPA G DESAI	AXQPD3634E	M.E/M.Tech	03/03/1997	MACHINE DESIGN	2	0	0	Assistant Professor		14/12/1998	Regular	Yes		No
A M SHIVAPRAKASH SWAMY	ALJPS3733J	M.E/M.Tech	24/01/1996	PRODUCTION MANAGEMENT	1	0	0	Assistant Professor		01/09/1994	Regular	Yes		No
DHANDIN RAMESH	ACBPR9560M	M.E/M.Tech	05/11/1996	PRODUCTION MANAGEMENT	2	0	0	Assistant Professor		10/11/1997	Regular	Yes		No
M BALAJI	ALXPB1671J	M.E/M.Tech	23/02/2004	PRODUCTION MANAGEMENT	4	0	0	Assistant Professor		05/10/2001	Regular	Yes		No
KOTRESH SARDAR	ASJPS9463N	M.E/M.Tech	27/03/2004	PRODUCTION ENGINEERING AND SYSTEM TECHNOLOGY	8	0	0	Assistant Professor		01/09/2004	Regular	Yes		No
A SWAMYNATH	BJWPS3751C	M.E/M.Tech	17/02/2005	THERMAL POWER ENGINEERING	0	0	0	Assistant Professor		26/08/2005	Regular	Yes		No
Dr. CHANDRA GOWDA M	AIKPC9836A	ME/M. Tech and PhD	01/09/2018	ALTERNATIVE FUELS - THERMAL	10	0	0	Assistant Professor		20/01/2009	Regular	No	04/09/2019	No
P K PAVAN KUMAR	AQJPP0455T	M.E/M.Tech	12/03/2008	THERMAL PWER ENGINEERING	5	0	0	Assistant Professor		02/08/2010	Regular	Yes		No
K SURESH KUMAR	DNLPS6044F	M.E/M.Tech	20/01/2010	CAD/CAM	10	0	0	Assistant Professor		24/02/2011	Regular	Yes		No
Y MALLIKARJUNA	AEDPY4592C	M.E/M.Tech	31/12/2008	MACHINE DESIGN	2	0	0	Assistant Professor		25/07/2011	Regular	Yes		No
K G PRAKASH	BBDPK2477E	M.E/M.Tech	27/07/2013	PRODUCTION ENGINEERING AND SYSTEM TECHNOLOGY	7	0	0	Assistant Professor		10/02/2012	Regular	Yes		No
V BALARAJ	AHMPV2005M	M.E/M.Tech	27/07/2013	MACHINE DESIGN	3	0	0	Assistant Professor		10/02/2012	Regular	Yes		No
B G CHANDRU	ATDPC4206A	M.E/M.Tech	22/08/2012	MANUFACTURING SCIENCE	3	0	0	Assistant Professor		01/10/2012	Regular	Yes		No
DEEPAK C	AGIPD2370A	M.E/M.Tech	07/01/2010	PRODUCTION TECHNOLOGY	3	0	0	Assistant Professor		22/10/2013	Regular	Yes		No
VITTAL RAO CHAVAN	APPPC2984R	M.E/M.Tech	09/04/2012	PRODUCTION TECHNOLOGY	17	0	0	Assistant Professor		25/07/2011	Regular	No	30/06/2018	No
LAKSHMAN NAIK T K	AWHPT6231D	M.E/M.Tech	27/07/2013	MACHINE DESIGN	6	0	0	Assistant Professor		20/07/2012	Regular	Yes		No
R H M SOMNATH SWAMY	BXYP8277B	M.E/M.Tech	09/04/2012	ENGINEERING ANALYSIS AND DESIGN	7	0	0	Assistant Professor		17/12/2012	Regular	Yes		No
SWAMY N	DPOPS2269F	M.E/M.Tech	05/04/2013	COMPUTER INTEGRATED MANUFACTURING	2	0	0	Assistant Professor		01/08/2013	Regular	Yes		No
MAHESH G	AQAPM1473B	M.E/M.Tech	05/04/2013	THERMAL POWER ENGINEERING	3	0	0	Assistant Professor		05/08/2013	Regular	Yes		No
G MANJUNATH SWAMY	BIJPG1283R	M.E/M.Tech	03/12/2012	MACHINE DESIGN	3	0	0	Assistant Professor		01/08/2013	Regular	Yes		No
ACHYUTHANAND K B	AIWPA1969Q	M.E/M.Tech	09/04/2012	TOOL ENGINEERING AND DESIGN	1	0	0	Assistant Professor		12/09/2013	Regular	Yes		No
H M NAVEEN	AGJPH2699M	M.E/M.Tech	02/09/2013	MACHINE DESIGN	0	0	0	Assistant Professor		04/08/2014	Regular	Yes		No
B BASAVAPRAKASH	AMRPP5949G	M.E/M.Tech	06/11/2014	THERMAL POWER ENGINEERING	2	0	0	Assistant Professor		02/08/2014	Regular	Yes		No
MANJUNATH K B	ABSPK7736N	M.E/M.Tech	22/11/2014	PRODUCT DESIGN AND MANUFACTURING	0	0	0	Assistant Professor		26/09/2014	Regular	Yes		No
K C MAHENDRA	AWDPM7984Q	M.E/M.Tech	22/11/2014	PRODUCTION ENGINEERING AND SYSTEM TECHNOLOGY	5	0	0	Assistant Professor		08/08/2014	Regular	Yes		No
SRIDHAR GOUDA M	BNTPG7181B	M.E/M.Tech	19/07/2012	PRODUCTION TECHNOLOGY	0	0	0	Assistant Professor		01/10/2012	Regular	No	13/04/2017	No

SATYANARAYANA ACHARI A	AWQPA5889F	M.E/M.Tech	09/05/2015	MACHINE DESIGN	0	0	0	Assistant Professor		23/02/2015	Regular	No	14/06/2017	No
CHIDANANDA MURTHY	Exempted	M.E/M.Tech	14/05/2014	MACHINE DESIGN	0	0	0	Assistant Professor		23/02/2015	Regular	No	14/06/2017	No
A GIRISH	AKFPG9869C	M.E/M.Tech	13/02/2006	ENERGY SYSTEMS	0	0	0	Assistant Professor		11/09/2006	Regular	No	13/04/2017	No
Dr. A THIMMANA GOUDA	ABRPG2361A	ME/M. Tech and PhD	23/05/2011	MAINTENANCE ENGINEERING	31	5	1	Professor	01/08/2008	02/09/1991	Regular	No	05/09/2017	No
VIRUPAKSHA GOUDA H	ACVPH1304D	M.E/M.Tech	22/11/2014	PRODUCTION MANAGEMENT	11	0	0	Assistant Professor		23/02/2015	Regular	Yes		No
VADDIN CHETAN	AOLPV8561L	M.E/M.Tech	30/09/2013	COMPUTATIONAL ANALYSIS IN MECHANICAL SCIENCE	7	0	0	Assistant Professor		01/08/2014	Regular	Yes		No

5.1 Student-Faculty Ratio (20)

Total Marks 18.00  
Institute Marks : 18.00

## UG

No. of UG Programs in the Department 1

MECHANICAL ENGINEERING						
Year of Study	CAY		CAYm1		CAYm2	
	(2018-19)		(2017-18)		(2016-17)	
	Sanction Intake	Actual admitted through lateral entry students	Sanction Intake	Actual admitted through lateral entry students	Sanction Intake	Actual admitted through lateral entry students
2nd Year	120	65	120	54	120	49
3rd Year	120	35	120	30	120	44
4th Year	120	29	120	39	120	30
<b>Sub-Total</b>	<b>360</b>	<b>129</b>	<b>360</b>	<b>123</b>	<b>360</b>	<b>123</b>
<b>Total</b>	<b>489</b>		<b>483</b>		<b>483</b>	
Grand Total	<input type="text" value="489"/>		<input type="text" value="483"/>		<input type="text" value="483"/>	

## PG

No. of PG Programs in the Department 2

PRODUCTION MANAGEMENT				
Year of Study	CAY(2018-19)		CAYm1(2017-18)	
	Sanction Intake		Sanction Intake	
1st Year	18		18	
2nd Year	18		18	
<b>Total</b>	<b>36</b>		<b>36</b>	
THERMAL POWER ENGINEERING				
Year of Study	CAY(2018-19)		CAYm1(2017-18)	
	Sanction Intake		Sanction Intake	
1st Year	18		18	
2nd Year	18		18	
<b>Total</b>	<b>36</b>		<b>36</b>	
Grand Total	<input type="text" value="72"/>		<input type="text" value="72"/>	

## SFR

No. of UG Programs in the Department 1



No. of PG Programs in the Department 2

Description	CAY(2018-19)	CAYm1 (2017-18)	CAYm2 (2016-17)
Total No. of Students in the Department(S)	561 <b>Sum total of all (UG+PG) students</b>	555 <b>Sum total of all (UG+PG) students</b>	555 <b>Sum total of all (UG+PG) students</b>
No. of Faculty in the Department(F)	35 <b>F1</b>	36 <b>F2</b>	39 <b>F3</b>
Student Faculty Ratio(SFR)	16.03 <b>SFR1=S1/F1</b>	15.42 <b>SFR2=S2/F2</b>	14.23 <b>SFR3=S3/F3</b>
Average SFR	15.23 <b>SFR=(SFR1+SFR2+SFR3)/3</b>		
<b>F=Total Number of Faculty Members in the Department (excluding first year faculty)</b>			

**Note:** 75% should be Regular/full time faculty and the remaining shall be Contractual Faculty/Adjust Faculty/Resource persons from industry as per AICTE norms and standards. The contractual faculty will be considered for assessment only if a faculty is drawing a salary as prescribed by the concerned State Government for the contractual faculty in the respective cadre.

5.1.1. Provide the information about the regular and contractual faculty as per the format mentioned below:

	Total number of regular faculty in the department	Total number of contractual faculty in the department
CAY(2018-19)	35	0
CAYm1(2017-18)	36	0
CAYm2(2016-17)	39	0

Average SFR for three assessment years : 15.23

Assessment SFR : 18

5.2 Faculty Cadre Proportion (25)

Total Marks 25.00  
Institute Marks : 25.00

Year	Professors		Associate Professors		Assistant Professors	
	Required F1	Available	Required F2	Available	Required F3	Available
CAY(2018-19)	3.00	6.00	6.00	0.00	18.00	29.00
CAYm1(2017-18)	3.00	6.00	6.00	0.00	18.00	30.00
CAYm2(2016-17)	3.00	6.00	6.00	0.00	18.00	33.00
Average Numbers	3.00	6.00	6.00	0.00	18.00	30.67

Cadre Ratio Marks  $[(AF1 / RF1) + [(AF2 / RF2) * 0.6] + [(AF3 / RF3) * 0.4]] * 12.5$  : 25.00

5.3 Faculty Qualification (25)

Total Marks 16.09  
Institute Marks : 16.09

	X	Y	F	FQ = 2.5 x [(10X + 4Y) / F ]]
2018-19(CAY)	8	26	28.00	16.43
2017-18(CAYm1)	6	27	27.00	15.56
2016-17(CAYm2)	6	29	27.00	16.30

Average Assessment : 16.09

5.4 Faculty Retention (25)

Total Marks 25.00  
Institute Marks : 25.00

Description	2017-18	2018-19
No of Faculty Retained	36	35
Total No of Faculty	39	39
% of Faculty Retained	92	90

Average : 91.00

Assessment Marks : 25.00

**5.5 Innovations by the Faculty in Teaching and Learning (20)**

Total Marks 20.00

Institute Marks : 20.00

Teaching and learning innovative practices are introduced to raise the curiosity of a student in wide domain to encourage the students to question the obvious and to increase the interaction in the class. Rapid advancement in technology is one of the major issues that affect the teaching/learning process. The facilitators find it difficult to keep pace with the techno-savvy learners. Further there is rapid change taking place in technology which aggravates the problem. Keeping the audience captivated throughout the lecture is another challenge. The facilitator is required to use a variety of tools to keep the learner engaged in the learning process since access to a variety of tools all the time may not be possible. Today knowledge is just a click away to the learner; a challenge faced by facilitators is to keep pace with the latest news and happenings. The teaching/learning process is given immense importance in the institute. The institute trains their facilitators continuously to help them enhance their teaching abilities. The evidence of success is visible, qualitatively as well as quantitatively. The qualitative factor improves etiquettes and desire to understand. Also, it changes the overall perspective towards life. The quantitative factor improves academic performance and motivates participation in co-curricular activities. Students who have graduated are performing extremely well in the corporate world. Some students have put their learning into application by starting their own businesses.

Following are the best and innovative practices undertaken by the faculty members for improving teaching and learning experience.

#### **Power Point Presentations**

Objectives

To enhance the overall comprehension of students and allow teachers to present their lessons in a more dynamic way

Outcomes

It provides the ability to equip presentations with different types of media - including images, sounds, animations, and much more. This enhances the students abilities to retain what is being taught, especially to those who are visual learners. Teachers can focus on the class and interact with the students instead of writing on a board.

#### **Student Seminars**

Objectives

To enhance the overall comprehension of students and allow students to present their lessons in a more dynamic way

Outcomes

This best practice enhances the Listening ability. Working in a team Leadership quality of students builds up. Team building of students grows as they work in a Team. Communication skill builds up by Oral Communication in seminars. Student takes responsibility while working in a team. Sharing of Knowledge uplifts while preparing. Students learn Time Management skill. Students learn to deal with conflicting opinions. For delivering seminars students Prepare, Produce and use visual aids for presentation.

#### **Industrial Visits**

Objectives

To provide students an insight regarding internal working of companies and industries.

Outcomes

Industrial visit is considered as one of the tactical methods of teaching. The main reason behind this is to help student to know things practically through interaction, working methods and employment practices. It also provides a good opportunity for students to gain awareness about industrial practices. Through industrial visit students get awareness about new technologies.

#### **Online NPTEL / IITBX Courses**

Objectives

It's a learning platform designed to provide educators, administrators and learners with a single robust, secure and integrated system to create personalized learning environments.

Outcomes

Moodle is used for blended learning, distance education and other e-learning projects in institute. With customized management features, it is used to create private websites with online courses for educators and trainers to achieve learning goals.

#### **NPTEL Videos**

Objectives

To enhance the quality of engineering education, on tip compatibility & resources for beyond curriculum.

Outcomes

online course contents and interactions between faculty members in science and engineering using the best academics practices About 70 courses offered by faculty in various departments and to students at all technical levels are given here. Setting up internal resources for implementing virtual online certification programmes in science and engineering.

#### **Mind Map technique**

Objectives

It enhances the preparation and presentation of overall concept in attractive way using eye magnetic symbols, line, colours etc and organize the notes and lecture conveniently.

Outcomes

1. Provides convenient learning and memorizing
2. Provide time management skills to prepare notes/understand concepts
3. Provide a very effective tool revise the concept and enhance the memory IQ.

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

Total Marks 15.00

Institute Marks : 15.00

Name of the faculty	Max 5 Per Faculty		
	2017-18 (CAYm1)	2016-17 (CAYm2)	2015-16 (CAYm3)
Dr.KORI NAGARAJ	5.00	3.00	3.00
Dr. K VEERESH	5.00	3.00	3.00
Dr. HIREGODAR YERRANNA	0.00	3.00	3.00
Dr. C THOTAPPA	3.00	3.00	3.00
Dr. G JAGANNATH REDDY	5.00	3.00	3.00
Dr. SHIV KUMAR MODI	5.00	3.00	3.00
Dr. S P JAGADISH	5.00	3.00	3.00
Dr. K MANJUNATH	5.00	3.00	3.00
M R INDHUDAR	5.00	3.00	3.00
SHIVAMANAPPA G DESAI	5.00	3.00	3.00
A M SHIVAPRAKASH SWAMY	5.00	3.00	3.00
DHANDIN RAMESH	5.00	3.00	3.00
M BALAJI	5.00	3.00	3.00
KOTRESH SARDAR	5.00	3.00	3.00
A SWAMYNATH	0.00	3.00	3.00
Dr. CHANDRA GOWDA M	5.00	3.00	3.00
P K PAVAN KUMAR	5.00	3.00	3.00
K SURESH KUMAR	0.00	3.00	3.00
Y MALLIKARJUNA	5.00	3.00	3.00
K G PRAKASH	5.00	3.00	3.00
V BALARAJ	5.00	3.00	3.00
B G CHANDRU	5.00	3.00	3.00
DEEPAK C	5.00	3.00	3.00
VITTAL RAO CHAVAN	5.00	3.00	3.00
LAKSHMAN NAIK T K	5.00	3.00	3.00
R H M SOMNATH SWAMY	5.00	3.00	3.00
SWAMY N	5.00	3.00	3.00
MAHESH G	5.00	3.00	3.00
G MANJUNATH SWAMY	5.00	3.00	3.00

ACHYUTHANAND K B	5.00	5.00	3.00
H M NAVEEN	5.00	3.00	3.00
B BASAVAPRAKASH	0.00	3.00	3.00
MANJUNATH K B	0.00	3.00	3.00
K C MAHENDRA	3.00	3.00	3.00
SRIDHAR GOUDA M	0.00	3.00	3.00
SATYANARAYANA ACHARI A	0.00	3.00	3.00
CHIDANANDA MURTHY	0.00	3.00	3.00
A GIRISH	0.00	3.00	3.00
Dr. A THIMMANA GOUDA	5.00	0.00	0.00
VIRUPAKSHA GOUDA H	5.00	3.00	3.00
VADDIN CHETAN	5.00	3.00	3.00
Sum	156.00	122.00	120.00
RF = Number of Faculty required to comply with 20:1 Student Faculty Ratios per 5.1	28.05	27.75	27.75
Assessment [3*(Sum / 0.5RF)]	33.37	26.38	25.95

Average assessment over 3 years: 28.57

#### 5.7 Research and Development (30)

Total Marks 23.00

##### 5.7.1 Academic Research (10)

Institute Marks : 10.00

Number of quality publications in refereed/ SCI Journals, citations, Books/ Book Chapters etc.

Staff Name	2018-19	2017-18	2016-17	2015-16	Total
Dr.HiregoudarYerrannagoudaru	5	4	-	-	9
Dr.Sivakumar Modi	-	1	1	-	2
Mr. M. R. Indudhar	2	-	2	2	6
Dr. C Thotappa	1	-	-	-	1
Dr. A Thimmana Gouda	-	-	2	-	2
Dr.Manjunatha K	5	4	-	-	9
Dr S P Jagadish	1	-	1	-	2
Mr.Vaddin Chetan	-	1	1	-	2
Mr. K G Prakash	-	-	1	-	1
Mr.Vittal Rao Chavan	-	2	-	1	3
<b>Total</b>	<b>14</b>	<b>12</b>	<b>8</b>	<b>3</b>	<b>37</b>

##### Details of Books Published

SI NO	Name of the Faculty	Title	Publisher
1	Dr Hiregoudar Yerrannagoudaru	Investigation Of Bio-Fuels and Low Cetane Fuels In CI Engine	LAMBERT Academic Publishing
2	Dr Hiregoudar Yerrannagoudaru	Investigation of Vegetable oils in semi-Adiabatic Diesel Engine	LAMBERT Academic Publishing
3	Dr Hiregoudar Yerrannagoudaru	Alcohols as Fuel in Diesel Engines and Reduction of Emissions.	LAMBERT Academic Publishing

**Details of Ph.D Guiding**

Name of the Guide	Name of Research Scholar	Research Center	University	Year of Registration
Dr. K Veeresh	K Suresh Kumar	RYMEC	VTU	2012
	K S Srinivas	RYMEC	VTU	2013
	G Manjunatha Swamy	RYMEC	VTU	2015
	Vittal Rao Chavan	RYMEC	VTU	2012
Dr. Hiregoudaru Yerranna Goudaru	M Balaji	RYMEC	VTU	2014
	G Mahesh	RYMEC	VTU	2014
	R H M Somanath Swamy	RYMEC	VTU	2014
	A Swamynath	RYMEC	JNTU Hyd	2013
	P K Pavan kumar	RYMEC	JNTU Hyd	2012
	S P Desai	RYMEC	VTU	2016
	Veeresh	RYMEC	VTU	2017
Dr. Kori Nagaraj	B S Pavan Kumar	RYMEC	VTU	2017
	V Balaraj	RYMEC	VTU	2015
	Achutananda K B	RYMEC	VTU	2017
	Vaddin Chetan	RYMEC	VTU	2017
	Sharanappa Koni	RYMEC	VTU	2019
Dr. C Thotappa	U Shantakumar	RYMEC	VTU	2015
	G Ramesh	RYMEC	VTU	2016
	G K Shivaprasad	RYMEC	VTU	2017
	Gavisiddesh P	RYMEC	VTU	2019
	Dhandin Ramesh	RYMEC	VTU	2019
Dr. A Thimmana Gouda	S G Desai	RYMEC	VTU	2011
	K G Prakash	RYMEC	VTU	2013
	B G Chandru	RYMEC	VTU	2017
	Swamy N	RYMEC	VTU	2017
	Virupaksha Gouda H	RYMEC	VTU	2017

**Ph.D Awarded**

Faculty Name	Year of completion	Guide	Research topic
Dr.Shiv Kumar Modi	2016	Dr. B Durgaprasad	Characterisation of thermo physical properties of fruit by dehydration and using heat transfer analysis
Dr.K.Manjunath	2017	Dr. Hiregoudaru Yerranna Goudaru	Investigation of biofuel and alcohols in diesel engine
Dr.S.P.Jagadish	2018	Dr.K R Dinesh	Investigation of biocomposite materials used as an implant material
Dr.Chandra Gowda M	2018	Dr. Hiregoudaru Yerranna Goudaru	Investigation of low cetane fuels in CI Engine with catalytic combustion using semi adiabatic bimetallic piston

2017-18 (CAYm1)

Project Title	Duration	Funding Agency	Amount
Design and analysis of new crank driven walking leg mechanism	24 Months	Veerashaiva Vidhyavardhaka Sangha, Ballari	450000.00
Collaborative Design, Analysis & Manufacturing of Dental Implant using E & M Manufacturing concepts	30 Months	Veerashaiva Vidhyavardhaka Sangha, Ballari	400000.00
Development and optimization of Drilling parameters of GFRP composite	36 Months	Veerashaiva Vidhyavardhaka Sangha, Ballari	500000.00
			Total Amount(X): 1350000.00

2016-17 (CAYm2)

Project Title	Duration	Funding Agency	Amount
G Power Generator	6 Months	KSCST	6000.00
A Status Report onMunicipal Solid WasteManagement System –Ballari City	4 Months	KSCST	10000.00
			Total Amount(Y): 16000.00

2015-16 (CAYm3)

Project Title	Duration	Funding Agency	Amount
Experimental Investigation of Jatropa and Hippe blended with ethanol using semiadiabatic air-gap bimetallic metal matrices crown piston in twin cylinder diesel engine and its performance evaluation.	6 Months	KSCST	6000.00
Formula Hybrid Vehicle	6 Months	Veerashaiva Vidhyavardhaka Sangha, Ballari	200000.00
			Total Amount(Z): 206000.00

Cumulative Amount(X + Y + Z) = 1572000.00

5.7.3 Development Activities (10)

Institute Marks : 10.00

A. Product Development

2018-19

SL.NO	Name of the Student	USN	Project Title	Name of the Guide
01	Mounesh G S	3VC15ME057	Design and fabrication of Mechanical walker using new mechanism	Prof. S G Desai
	Sunanda N	3VC15ME109		
	Malli B	3VC16ME406		
	Chaitra K	3VC16ME407		
02	Venkatesh P	3VC15ME117	Design and fabrication of Coconut oil extraction machine	Prof. H M Naveen
	Manoj Kumar	3VC15ME048		
	Vilas Kumar	3VC15ME119		
	Earanagouda	3VC15ME019		
03	Subham	3VC15ME104	Design and fabrication of multi person cycle	Dr. kori Nagaraj
	Sreekanth N T	3VC15ME102		
	Sharnagawada S V	3VC15ME093		
	Shivaraj	3VC15ME097		
04	Ashish A G	3VC15ME008	Design and fabrication of Robotic oil Skimmer using Bluetooth powered by solar energy	Prof. Lakshman Naik
	Vishwanatha Reddy . P	3VC16ME447		
	Ningraj Dodamani	3VC15ME064		
	Rajesh . W	3VC15ME081		
	Mahamed Hyder . P H	3VC15ME043		

2017-18

SLNo	Name of the Student	USN	Project Title	Name of the Guide
01	B Vijay Kumar	3VC12ME011	Design and fabrication of segway vehicle	Prof. R H M Somanath Swamy

	Saddam Hussain	3VC12ME087		RHMS-1
	Shabaresh Guptha K S	3VC12ME093		
	Khaja Farheen Taj	3VC13ME411		
02	Akshay M	3VC13ME008	Design And Fabrication Of Plantain Fiber Extraction Machine	Prof. K.C.Mahendra
	Gavi Prakash	3VC13ME027		
	Justin Mathew	3VC13ME040		
	Mallikarjun	3VC13ME058		
03	Harish Kumar B	3VC14ME034	Filament Flow Fabricator	Prof. B G Chandru
	Akhil Kumar S	3VC14ME004		
	Ramanjaneya	3VC14ME082		
	Sachin T	3VC14ME089		
04	Ashok M	3VC12ME009	Design, analysis and fabrication of square thread based lifting system.	Prof. H M Naveen HMN-1
	Kiran Kumar B	3VC12ME045		
	Lakshmana Naika L	3VC12ME051		
	Anand Reddy N	3VC12ME066		
05	Veresh	3VC12ME112	Manually operated Rice dehusking Machine	Prof. Shivamanappa G Desai SGD-1
	Vinayaka Belur	3VC12ME119		
	W Pavan Kumar	3VC12ME122		
	Abhishek H	3VC13ME400		

2016-17

Sl.No.	Name of the Student	USN	Project Title	Name of the Guide
01	Shivakumar R B	3VC13ME104	Design and fabricate 8 legged walking machine	Prof. S G Desai
	Siddahanta Reddy	3VC13ME106		
	Prakash Asampoor	3VC13ME075		
	K Ranjith Kumar	3VC13ME043		
02	Sunil Kumar R	3VC14ME425	Mechanical modernized standing mobility wheel chair	Prof. V Balaraj
	Nandeesh	3VC14ME413		
	Mahesh K	3VC14ME409		
	Pradeep H Tirukoji	3VC14ME418		
03	Chandrashekar S A	3VC13ME018	Design and fabrication of drone (Helicopter)	Prof. Lakshmana Naik T K
	Saibanna	3VC13ME100		
	Manjunatha K	3VC13ME060		
	Nagaraj Bulderu	3VC13ME068		
04	Varun Kumar B	3VC13ME116	Design & fabrication of balancing machine for a rotating masses	Prof H M Naveen
	Sujith Kumar Y	3VC13ME109		
	P Chandra Prakash	3VC13ME084		
	Veerabhadrappa	3VC13ME118		

#### B. Research Laboratories

Sl.No	Center of Excellence	
01	Center of Excellence for Bio- Fuels Research	
02	Technology Research and development center	In collaboration with Tata Technologies
03	Advanced Manufacturing center	Ltd. Pune

#### Center of Excellence for Bio- Fuels Research

##### Objectives

- To provide the suitable technology to use the bio-fuels / vegetable oils in the existing IC Engines / modified engines.



- o To provide the technology to use locally available bio-fuels in I.C. Engines / modified engines.
- o To encourage rural employment.
- o To become self-sustainable energy development center.
- o To promote awareness among the public to grow *Bio fuel plants* in non agricultural lands (Waste lands, mining lands and landfills).
- o To provide the platform for research scholars to carryout projects in the center.

**List of Research projects carried out on Bio-Fuels in the center**

Sl. No.	Name of the Funding Agency	Project Title	Year of Funding	Duration	Amount Sanctioned (Rs.)	Status
1.	KSCST* (DBFGK)	Investigation Of Rubber Seed oil as Alternative Fuels in Semi-Adiabatic Diesel Engine.	2013	6 Months	15,000/-	Completed
2.	KSCST* (DBFGK)	Experimental investigation of gasified Vegetable Oils As Alternative Fuels In SI Engine on Road Bike	2016	6 Months	10,000/-	Completed

\* KSCST-DBFGK -Karnataka State Council for Science and Technology, Dept. of Bio-Fuels Govt. of Karnataka.

- Five patents are filed on Bio-Fuels (in Amended stage)
- Two Ph.Ds are produced from Bio-Fuels in the center
- 20 projects are carried out on bio-fuels by PG students
- 10 projects are carried out on bio-fuels by UG students
- UG students from other Institutions have carried out projects on bio-fuels in the center

**Technology Research and development center**

RYMEC- Mechanical Engineering Department has incepted a state of the art, Centre of Excellence by signing an MoU with TATA Technologies Ltd., Pune in association with Science & Technology Park under National Skill Development Programme, initiated through MHRD, Government of India, with nomenclature “Centre for Invention, Innovation, Incubation & Training”. These competency centres will expose our students to advanced technology adapted in the industry, provides hands-on experience, enhances employability skills and makes them Industry ready. These centres will help Mechanical, Electrical, Electronics and Management students in enhancing their core skills. These centres are geared with facilities which will make possible that our students can apply the theoretical knowledge gained in their academics and create conceptual projects and products that will solve many industrial and social problems.

The Competency centres established are:

- “Technology Research & Development Centre” having high-end Industrial workstations with Commercial licensed S/W tools.

This competency centre is equipped with the following facilities:

- Workstation Configuration: Intel Xeon Processor, 32 GB RAM, 8GB Quadro Graphics with dual Bezel monitors.  
Make: HP
- List of Softwares available:
  - Dassault Systems suite package comprises of 40 modules for Industrial Design & Development, Research and Consultancy.
  - MSC Software Suite package comprises of 81 different modules of Adams, Easy5, Marc, Apex, Nastran and SCFlow for CAE analysis.
  - ISRO-FEAST comprises of 10 tools for Linear static, Free Vibration, Buckling, Transient, Frequency response, Random response, Base excitation, Thermal analysis and many more.
  - I-GET IT for E-Learning on advanced technologies in CAD, CAM, CAE and PLM
- The center can deliver domain trainings on:
  - Product Design
  - Product Modelling
  - Analysis
  - Product Life cycle and Data management.

**Advanced Manufacturing center**

“Advanced Manufacturing Engineering Centre” Equipped with Advanced Digital manufacturing facilities.

This Competency centre is equipped with the following facilities:

- Equipments:-
  - CNC Vertical Milling Machine- AMS 430
  - Industrial Robot for Arc Welding - YASKAWA MOTOMAN
  - 3D Printer for Additive Manufacturing - ULTIMAKER 3 EXTENDED
  - 3D Scanner for Reverse Engineering - EINSCAN SE
- Support Software:-
  - CAPS Turn, CAPS Mill, seeNC Turn, seeNC Mill, nCycle Turn, nCycle Mill.
  - CURA.
  - EinScan-S series\_v2.7.0.8
- This centre can deliver hands on domain trainings on:

- a. CNC Technology and Operations.
- b. Digital Manufacturing.
- c. Robotic Operations & Programming.
- d. Reverse Engineering.
- e. Re- Engineering.
- f. Computer Integrated Manufacturing.

**Details of facility available for Research in Mechanical department**

Sl.No	Name of the Equipment	Name of the Laboratory	Utilization
01	Micro Vickers hardness Test	R & D Lab	PG & Ph.D Projects
02	Imported Inverted Metallurgical Microscope with Real Time Based Live Image Analysis Software system		
03	Surface Roughness Test		
04	Pin-on-disc testing machine		
05	Electronic Balancing Machine		
06	Digital Impact testing machine	Material Testing Lab	UG, PG & Ph.D Projects
07	Muffle Furnace		
08	Brinell cum Rockwell hardness testing machine		
09	Ultrasonic flaw detector		
10	Fatigue Testing Machine		
11	Torsion Testing Machine	Energy Conversion Lab	UG, PG & Ph.D Projects
12	Emission test Rig		
13	Feble bed heat exchanger		
14	Combustion IC engine		
15	Bomb Calorimeter		
16	Esterification		
17	Fuel Testing equipment		
18	Profile Projector	Metrology & Measurements Lab	UG, PG & Ph.D Projects
19	MAT-Lab-software	PG Lab	PG & Ph.D Projects
20	Ansys software.	Computer Lab 2	UG, PG & Ph.D Projects
21	CADM- Software		
22	Solid Edge		
23	CNC-3 Aaxis vertical milling macine		
24	Industrial Robot for welding		
25	CNC Trainer	Advanced Manufacturing Center (Tata Technologies Limited)	UG, PG & Ph.D Projects
26	3D Printer		
27	3D Scanner		

**C. Instruction Materials**

**List of Instructional Materials available in the department**

Sl.No	Instructional Materials
01	PPT, Educational Videos using Audio Video facilities (Projectors, Tabs, Computers)
02	Sectional models of IC engines
03	Boilers models
04	Models for Engineering Graphics
05	Mechanical Joints and coupling models
06	Window mounted air conditioner
07	Mechanisms
08	Laboratory Manuals, Standard specimens, Charts, etc.,

**D. List of Working Models**

Sl.No	Working Models
1	Static and Dynamic Balancing of rotating masses.
2	Hydraulic trainer Kit.

E. List of Charts available in the Laboratory

Sl.No	Name of the Laboratory	Charts
01	CAED Lab	<ul style="list-style-type: none"> <li>Conventional Representations of Lines/Materials</li> <li>Methods of Projections</li> <li>Orthographic Projections</li> <li>Developments of Surfaces of Solids</li> </ul>
02	CAMD / CAMA / CIM Lab	<ul style="list-style-type: none"> <li>Rivets and Riveted Joints</li> <li>Bolts and Washers</li> <li>Knuckle Joints</li> <li>Types of Screws</li> <li>Types of Nuts</li> <li>Dimensioning 1</li> <li>Dimensioning 2</li> <li>Couplings 1</li> <li>Couplings 2</li> <li>Main thread forms</li> </ul>
03	Heat Transfer Lab	<ul style="list-style-type: none"> <li>Vapor Compression refrigeration cycle</li> <li>Window air conditioner</li> </ul>
04	Workshop	<ul style="list-style-type: none"> <li>Safety Charts</li> <li>Oxy Acetyline torch</li> <li>Gas Flames</li> <li>Electric Arc Welding</li> <li>Weld Symbols 1</li> <li>Weld Symbols 2</li> </ul>
05	Foundry & Forging Lab	<ul style="list-style-type: none"> <li>Foundry hand Tools 1</li> <li>Foundry hand Tools 2</li> </ul>
06	Material Testing Lab	<ul style="list-style-type: none"> <li>Venire Caliper</li> <li>Gear Tooth Venire Caliper</li> </ul>
07	Mechanical Measurements & metrology Lab	<ul style="list-style-type: none"> <li>Engineering Fits</li> <li>External Micrometer</li> <li>Limit Gauges</li> <li>Tool Makers Microscope</li> </ul>
08	Machine shop	<ul style="list-style-type: none"> <li>Lathe Parts</li> <li>Capstan Lathe</li> <li>Turret Lathe</li> <li>Screw Cutting In the Lathe</li> <li>Parts of a Standard shaper</li> <li>Milling Cutters 1</li> <li>Milling Cutters 2</li> </ul>
09	Fluid Mechanics Lab	<ul style="list-style-type: none"> <li>Pelton Wheel</li> <li>Francis Turbine</li> <li>Kaplan Turbine</li> <li>Centrifugal Pumps</li> </ul>
10	Energy Conversion Lab	<ul style="list-style-type: none"> <li>4 stroke cycle</li> <li>Single Cylinder Engine</li> <li>4 Stroke Petrol Engine</li> <li>Constant Mesh Gear Box</li> <li>4 Stroke Diesel Engine</li> <li>Gear Pullers</li> </ul>

**2017-18 (CAYm1)**

Project Title	Duration	Funding Agency	Amount

**2016-17 (CAYm2)**

Project Title	Duration	Funding Agency	Amount

**2015-16 (CAYm3)**

Project Title	Duration	Funding Agency	Amount

Cumulative Amount(X + Y + Z) =

**5.8 Faculty Performance Appraisal and Development System (FPADS) (30)**

Total Marks 30.00

Institute Marks : 30.00

A Faculty Performance Appraisal and Development System is essential to each academic institution looking forward to the long-term promotion of faculty competence and academic excellence.

**The objectives of Faculty Performance Appraisal Development System**

1. To Assess and promote excellence in the teaching/learning process.
2. To Meet the educational needs of students and community by continually monitoring instructional performance.
3. To provide a constructive framework for evaluating faculty performance by identifying areas of strength and areas for improvement in classroom instruction.
4. To Provide a basis for professional growth and development.

**I. Components of Faculty Performance Appraisal Development System**

1. Students Feedback
2. Faculty Self Appraisal

**1. Students Feedback**

Following are the components considered for Students Feedback

1. Presentation of the subject matter
2. Preparation for the class
3. Oral communication
4. Regularity and punctuality in conducting classes.
5. Coverage of syllabus
6. Clearing the doubts inside/outside the class
7. Level of interest shown in the class.
8. Maintenance of discipline and relationship with the students
9. Availability of teacher in department for discussion
10. How comfortable are you with the teacher.

Each component is rated by giving 1 to 10 points.

- Below average:1-4
- Average:5-6
- Good:7-8
- Excellent:9-10

The performance analysis of faculty is carried out by calculating the average rating and the number of student responses for each component of the student feedback.

**2. Faculty Self Appraisal form:**

Individual faculty members rate themselves by completing the Faculty Self-Evaluation Form, being as objective as possible. Based upon self-evaluation findings or related areas of interest for self-improvement, the faculty member notes proposed professional development opportunities. The components of the Faculty Self- Appraisal Form are

• **Faculty contribution towards Research**

1. Publications in conferences and Journals
2. Submission of Research proposal
3. Contribution to growth of any industry, consultancy to industry, any solution developed by you is used in industry
4. Books, Printed lab journals, compendium, or any printed contribution to your academic area
5. Invited talks, workshops, conferences organized by you as coordinator or important role in the organization of the event
6. Funds received from funding agencies in last three years
7. Membership with Professional bodies (IEE,ISTE)

• **Faculty contribution towards curriculum**

1. Best practice that is introduced to improve teaching and learning process
2. Abstract why student should join your department for pursuing higher education (BE course)
3. Course taught by you which contributes to contents beyond syllabus
4. What is your role in publishing newsletter of the college/Department
5. Contribution to E-Learning contents
6. List students under your guidance acquired certificates that can be used as proof of Lifelong Learning
7. Your contribution to help direct and indirect analysis of NBA. Collection of feedback forms of Alumni, Parent, and Employer for assessment of PEO and PO.
8. What is the role played by you in finalization Vision, Mission, PEO, PSO's or any other document
9. Analysis of CO-PO mapping in last three years and suggestion to improve attainment of PO's. Expected target level shall be more than 50%
10. Analysis of course exit survey and suggestions to improve attainment of CO and PO's
11. Analysis of CO-PO mapping of Project works through rubric form in last three years

• **Faculty contribution at Department/Institute level**

1. What is your contribution to the department in the current academic year?
2. Philosophy of teaching that includes staff member conception of teaching and learning, description of how staff members teach and justification for why you teach that way
3. Visiting status in other engineering institutions/universities
4. Have you helped the department to have MOU with any industry, Specify industry name and its activities
5. Improvements in the department observed by you since last accreditation visit
6. List five strong and five weakness points about you
7. List at least three points why your presence or service is important to the department or college
8. List five strong and weakness of the department in preparation of NBA.
9. Role of Staff member at the institute level
10. Faulty publication in collaboration with peers of other institution
11. What is your contribution to improve campus placements /higher education etc.
12. Any other information that can help assessment of staff member or Help NBA process

Each faculty submits the Self Appraisal form annually to the HOD.

**II Evaluation of faculty Form by Head of the department**

Head of the department completes the Evaluation of Faculty Form using the

information from observation of instruction, review of syllabi, evaluation of other duties, feedback from students, and subject results. HOD evaluates each faculty based on the following parameters:

1. Character and conduct
2. Regularity and punctuality/availability during the working hours/frequency of leaves availed
3. Attitude towards work.
4. Papers published
5. Papers presented
6. Sponsored projects
7. Presentation in class rooms/labs
8. Communication skills
9. Shouldering responsibility /Extra Curricular activities
10. Memos

Each component on the evaluation is rated by giving 1 to 10 points.

- Poor (2)
- Fair(4)
- Good(8)
- Excellent(10)

Based on the observation, HOD recommends promotion/increment for the faculty to the principal office.

### III. Evaluation by Principal office

1. Supports and monitor the execution of the system.
2. Verifies and accredits the results submitted by the respective departments.
3. Considers reevaluation applications submitted by each faculty.
4. Prepares final college faculty evaluation report.
5. Sends final report/s to the Office of Evaluation.

Based on the feedback given by HOD, the principal office recommends for further action.

### IV. The Office of Evaluation:

1. General supervision of the application of the Faculty Performance Review and Development System.
2. Cooperation with the various departments of the colleges to implement the Review and Development System.
3. Contribution in overcoming problems arising at the time of implementation of the Review and Development System.
4. Preparation of the final Faculty Review and Development Report and submits to the management
5. Document Confidentiality: Evaluation documents and materials prepared and gathered in this process are treated as confidential and limited to authorized persons.

After completion of the system, the concerned Head of the Department is required to meet with every faculty member in person to provide necessary feedback on strengths and weaknesses of the faculty performance, so as to launch a better future plan.

### Faculty Interaction with outside world

2019-20

Sl.No	Name of the Faculty	Role of the Faculty	Event
1	Dr. Kori Nagaraj	Judge	Social Innovation Ideathan at BITM, Ballari
2	Dr. K Veeresh	LIC Member	VTU, Belagavi
3	Dr. K Veeresh	MPC Member	VTU, Belagavi
4	Dr. S P Jagadish	State Scholarship E-attestation officer	VTU, Belagavi
5	Dr. S P Jagadish	State Scholarship E-attestation officer	Social welfare department, Govt. of Karnataka (SSP)
6	Dr. Veerabhadrappa Algur	Guest Speaker	3 Days workshop on "Realistic approach to wear mechanisms and measurements" held during 21 <sup>st</sup> to 23 <sup>rd</sup> Sep 2019 at Cambridge institute of technology north campus, Kundana, Bengaluru.
7	Dr. Veerabhadrappa Algur	BOE Member	VTU, 2019-20.
8	Dr. Veerabhadrappa Algur	BOS Member	Vijayanagara Sri Krishnadevaraya University.

2018-19

Sl.No	Name of the Faculty	Role of the Faculty	Event
1	Dr. K Veeresh	LIC Member	VTU, Belagavi
2	Dr. Kori Nagaraj	Session Chair	International conference on emerging trends in engineering, technology and management at PDIT, Hosapete from 26 <sup>th</sup> & 27 <sup>th</sup> April 2019
3	Dr. Kori Nagaraj	Judge	3 <sup>rd</sup> State level Project Exhibition 2K19, Department of Computer Science, RYMEC, Ballari from 12 <sup>th</sup> & 13 <sup>th</sup> April 2019
4	Dr Hiregoudar Yerranna Goudaru	Member of Editorial Board	GLACIER Journal of Scientific Research ISSN: 2349-8498
5	Dr Hiregoudar Yerranna Goudaru	Awarded the prestigious "Adarsh Vidya Saraswati Rashtriya Puraskarm" (National Award of Excellence 2019)	GLACIER Journal research foundation, Global Management Council
6	Dr. A Thimmana Gouda	Session Chair	International conference on emerging trends in engineering, technology and management at PDIT, Hosapete from 26 <sup>th</sup> & 27 <sup>th</sup> April 2019
7	Dr. A Thimmana Gouda	BOS Member	VTU, Belagavi
8	Dr. C Thotappa	Judge	3 <sup>rd</sup> State level Project Exhibition 2K19, Department of Computer Science, RYMEC, Ballari from 12 <sup>th</sup> & 13 <sup>th</sup> April 2019
9	Dr Manjunatha K	Member Membership No: <b>M4150902268</b>	International Society for Research and Development with Life Time
10	Dr Manjunatha K	Editorial Board Member	Editorial Board Member in Seventh Sense Research Group and SSRG International Journal of Mechanical Engineering with ID NO : SSRG- IJME-1087
11	Dr Manjunatha K	Editorial Board Member	World Academy of Science, Engineering and Technology, Riverside, Conneticut, CT 06878, USA.
12	Dr Manjunatha K	Member	International Institute of Engineers and Researchers

13	Dr Manjunatha K	Reviewer	for Taylor and Francis, Biofuel Journal Paper
14	Dr Manjunatha K	Editorial Board Member	International Journal of Civil, Mechanical and Energy Science (IJCMES)
15	Dr Manjunatha K	Editorial Board Member	International Journal of Mechanical Engineering and Automation
16	Dr Manjunatha K	Reviewer	Journal of Energy and Power Engineering David Publishing Company, Valley Cottage, NY 10989, USA
17	Dr Manjunatha K	Editorial Board Member	VSRD International Journal of Mechanical, Civil, Automobile & Production Engineering
18	Dr Manjunatha K	Reviewer	Asian Journal of Engineering and Technology
19	Dr Manjunatha K	Reviewer	IJ International Journal for Research in Mechanical Engineering with Reviewer ID : RV115ME81352.
20	Dr Manjunatha K	Member	T Association for Science, Education and Technology (TASET), Sakarya University, Sakarya, TURKEY.
21	Dr Manjunatha K	Reviewer	Int International Journal of Mechanical Engineering Research ( <a href="http://www.forexjournal.co.in/publication/ijmer.php">http://www.forexjournal.co.in/publication/ijmer.php</a> ) , FOREX Publication-International Journals Publisher, New Delhi   Taiwan   New York.
22	Dr Manjunatha K	Reviewer	A Advances in Science, Technology and Engineering Systems Journal with Reviewer ID : RVEMU0071, United States, United Kingdom.
23	Dr Manjunatha K	Reviewer	World Journal of Engineering , Manuscript Central Support, Emerald Group Publishing Limited, Howard House, Bingley, West Yorkshire, BD16 1WA, UK
24	Dr Manjunatha K	Reviewer	<b>Energy Efficiency</b> ISSN: 1570-646X (print version), ISSN: 1570-6478 (electronic version), Journal no. 12053, Springer Publication.
25	Dr Manjunatha K	Reviewer	Energy Sources, Part A: Recovery, Utilization, and Environmental Effects Taylor & Francis Group, 325 Chestnut Street, Suite 800, Philadelphia, PA 19106
26	Dr Manjunatha K	Reviewer	Reviewer for Heat Transfer –Asian Research, Edited By: William M. Worek Online ISSN: 1523-1496, © Wiley Periodicals, Inc. Michelle Bayman, John Wiley & Sons, Inc., 111 River St., Hoboken, NJ 07030-5774, USA, HTJeditorial@wiley.com (mailto:htjeditorial@wiley.com)
27	Dr Manjunatha K	Reviewer	Materials Today: Proceedings, elsevier.com
28	Mr. Kotresh Sardar	Received award prize of Rs.5000/- for Poster exhibition	11 <sup>th</sup> Annual Karnataka Science and Technology Academy conference, Bangalore.
29	Mr. Swamy N	Reviewer	International Journal of Engineering Research & Technology (IJERT)
30	Mr. Virupaksha Gouda H	Reviewer	International Journal of Creative Research Thoughts (IJCRT)
31	Mr. Virupaksha Gouda H	Reviewer	International Journal of Engineering Research & Technology (IJERT)

2017-18

Sl.No	Name of the Faculty	Role of the Faculty	Event
1	Dr. A Thimmana Gouda	Editor	V V Sangha's 100 years souvenir namely "Vidya Siri" and " Vidya Sampatthu" during Sep/Oct 2017
2	Dr. A Thimmana Gouda	BOS Member	VTU, Belagavi
3	Dr. S K Modi	Session Chair	DYNAMECHS-2K18 on 28.03.2018 at JNTU college of Engineering, Anantapuramu, AP.
4	Mr. Shivamanappa G Desai	Patent Applied for "Crank Driven walking leg Mechanism"	Indian Patent Application: Report No.201841004795 on 9 <sup>th</sup> Feb 2018.
5	Dr Hiregoudar Yerrannagoudaru	Committee member 26/02/2018	PG Diploma in solar energy SKU Bellary
6	Dr Hiregoudar Yerrannagoudaru	Vice-Chancellor Nominee to the governing council	Governing council
7	Mr. Virupaksha Gouda H	Reviewer	Institute for Exploring Advances in Engineering (IEAE)

2016-17

Sl.No	Name of the Faculty	Role of the Faculty	Event
1	Dr. A Thimmana Gouda	BOS Member	VTU, Belagavi
2	Dr. Kori Nagaraj	LIC Member	VTU, Belagavi
3	Dr Manjunatha K	Reviewer	for SAE INDIA International Mobility Conference SIIMC 2016.
4	Dr Hiregoudar Yerrannagoudaru	Allotment of Examiners for Practical Exam.	Allotment of Examiners for Practical Exam.VTU 2/5/2017

5	Dr Hiregoudar Yerrannagoudaru	Meeting on Board of Examiners to QPs.	Meeting on Board of Examiners to QPs VTU. 24/04/2017
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**2015-16**

SI.No	Name of the Faculty	Role of the Faculty	Event
1	Dr. Kori Nagaraj	BOE	VTU, Belagavi
2	Mr. M R Indhudar	Reviewer	International Journal of Engineering Science and Technology
3	Dr. Hiregoudar Yerranna Goudaru	Patent Applied for "Design and Development of Novel MFUCG equipment"	Indian Patent Application: Report No.6850/CHE/2015
4	Dr Manjunatha K	Conference Technical Committee Member	2 <sup>nd</sup> International Conference on Mechanical, Aeronautics and Automotive engineering (ICMAA 2015),Penag, Malaysia
5	Dr. Hiregoudar Yerranna Goudaru	LIC committee Member	LIC committee VTU

**Books Publication**

**2018-19**

SI NO	Name of the Faculty	Title	Publisher
1	Dr Hiregoudar Yerrannagoudaru	Investigation Of Bio-Fuels and Low Cetane Fuels In CI Engine	LAMBERT Academic Publishing
2	Dr Hiregoudar Yerrannagoudaru	Investigation of Vegetable oils in semi-Adiabatic Diesel Engine	LAMBERT Academic Publishing
3	Dr Hiregoudar Yerrannagoudaru	Alcohols as Fuel in Diesel Engines and Reduction of Emissions.	LAMBERT Academic Publishing

**5.9 Visiting/Adjunct/Emeritus Faculty etc. (10)**

Total Marks 5.00

Institute Marks : 5.00

SI.No	Name of the Visiting Faculty	Course Name & Code	Year
1	Mr. Siddalingappa K B	Adalita Kannada (18KAK28/39/49)	2019-20
2	Mr. Siddalingappa K B	Vyavaharika Kannada (18KVK28/39/49)	2019-20
3	Mr. A M P Veeresh Swamy	Kannada manassu (17KKM39/49)	2018-19
4	Mr. A M P Veeresh Swamy	Kannada kali (17KKK39/49)	2018-19

**6 FACILITIES AND TECHNICAL SUPPORT (80)**

Total Marks 75.00

**6.1 Adequate and well equipped laboratories, and technical manpower (30)**

Total Marks 30.00

Institute Marks : 30.00

Sr. No	Name of the Laboratory	Number of students per set up(Batch Size)	Name of the Important Equipment	Weekly utilization status(all the courses for which the lab is utilized)	Technical Manpower Support		
					Name of the Technical staff	Designation	Qualification
1	CAED Lab	60	1.Computers 2. Server 3. Printer 4. Projector 5. Scanner 6. UPS 7. Fire Extinguisher	All Program (5 Batches ( 15 hrs per week)	Mr.U Suresh	Assistant Instructor	ITI



2	Material Testing Lab	25	1. Metallurgical Microscope 2. Magnetic particle testing kit 3. JIGS for polishing 4. Buffing Machine (Model: KA-DD) 5. Metzer Meta vision inclined Binocular Metallurgical microscope Model 6. Double disc polishing machines 7. Muffle furnace 8. Impact testing machine Digital. 9. Brinell cum Rockwell hardness tester 10. UTM (60 Tonne) 11. Torsion testing machine 12. Fatigue testing machine 13. Portable Digital Ultrasonic flaw detector 14. Dye penetration test kit	6 Batches (18 Hrs per week)	1. Mr. Jagadish Kumar 2. Mr. S. Yerriswamy	1. Instructor 2. Asst. Instructor	1. ITI 2. ITI
3	Foundry & Forging Lab	25	1. Moulding boxes 2. Core boxes 3. Muffle furnace 4. Sand / sieve shaker 5. Sand rammer with specimen tube. 6. Permeability meter 7. Moisture teller 8. USST Machine 9. Shatter index 10. Mould hardness tester 11. Core hardness tester 12. Sand muller 13. Sand washer 14. Open hearth with electrical blower 15. Open hearth with hand blower 16. De Walt 14 " cut-off machine 17. Electronic weighing scale (10 Kg capacity)	6 Batches (18 Hrs per week)	1. Mr. Vamadeva 2. Mr. Siddaramana Gouda	1. Assistant Instructor 2. Helper	1. ITI 2. PUC
4	CAMD Lab	25	1. Computers 2. Server 3. Printer 4. Scanner 5. Projector 6. UPS	6 Batches (18 Hrs per week)	Mr. Taher Basha	Instructor	ITI
5	Mechanical Measurements & Metrology Lab	25	1. Two wire set 2. Digital O/S micrometer 3. O/S micrometer 4. Plugger Dial 5. Pressure measurement trainer 6. Temperature measurement trainer 7. Calibration of Load cell 8. LVDT trainer 9. Strain measurement trainer 10. Sodium monochromatic light unit. 11. Mechanical comparator	6 Batches (18 Hrs per week)	1. Mr. Jagadeesh Kumar 2. Mr. Prabhudev H	1. Instructor 2. Asst. Instructor	1. ITI 2. BSc
6	Machine Shop Lab	25	1. Bench Grinding Machine 2. Azad power hacksaw m/c 3. Kirloskar Lathe EP-1330 4. Kirloskar Shimoga Lathes 5. Batliboi milling m/c 6. Rolax Surface Grinding m/c 7. Rolax Surface drilling m/c 8. Eifffico Radial drilling m/c 9. Eifffico Piller Drilling m/c 10. Sager grade I-Shaping m/c 18" 11. Servo raj shaping m/c 12" 12. Efico slotting m/c 13. Kirloskar lathe 1550 14. Batli boi BGL-350 Lathe 15. Kirloskar - M K Capstan Lathe 16. Rolex Prime Hacksaw m/c 17. Bench Grinding 8 " 18 Kirloskar Lathe (Harihara)	6 Batches (18 Hrs per week)	1. Mr. Ganganna 2. Mr. Vamadeva 3. Mr. Nagabhushan	1. Instructor 2. Asst. Instructor 3. Asst. Instructor	1. ITI 2. ITI 3. ITI
7	Fluid Mechanics Lab	25	1. Venturi and Orifice meter setup 2. Friction in pipes and minor losses in pipe fittings setup. 3. Notch Calibration. 4. Impact of jet on vanes 5. Centrifugal pump Test rig 6. Metacentric height ship model 7. Bernoulli's apparatus (with reynold's apparatus attachment) 8. Gear and vane pump test rig 9. Reciprocating pump test rig 10. Series and parallel pump test rig 11. Pelton wheel turbine 12. Francis turbine 13. Kaplan turbine 14. Open orifice and mouth piece setup 15. Calibration of broad crested weir-masonry work 16. Calibration of ogee spill way- masonry work 17. Centrifugal air blower 18. Centrifugal air blower 19. Calibration of flow nozzle.	6 Batches (18 Hrs per week)	1. Mr. B. Ganganna 2. Mr. Kubera Reddy	1. Instructor 2. Assistant Instructor	1. ITI 2. ITI
8	Energy Conversion Lab	25	1. Pensky Martin Closed Cup Tester. 2. Redwood Viscometer 3. Aimil Saybolt Viscometer electrically Heated 4. Two-Stage Air Compressor 5. Four Stroke Cycle Diesel C. I. Engine (Water Cooled) 6. Four Stroke Cycle Twin Cylinder Diesel Engine 7. Two Stroke Petrol Engine With Air Cooled And Electrical Loading 8. Junkers Gascalorimeter 9. Single Cylinder 4 Stroke Petrol Engine Test Rig With Suitable Dc Generator And Resistance Load Bank 10. Multi Cylinder Petrol Engine Test Rig With Hydraulic Dynamometer For Morse Test 11. Vcr Petrol Engine Test Rig. 12. Torsion Viscometer 13. Bomb Calorimeter	6 Batches (18 Hrs per week)	1. Mr. S.M. Basavaraj 2. Mr. Thimma Reddy	1. Instructor 2. Assistant Instructor	1. ITI 2. ITI

9	Heat Transfer Lab	25	1. Thermal Conductivity of a Metal Rod set up. 2. Heat Transfer Coefficient of a Composite wall set up. 3. Effectiveness on a Metallic fin set up. 4. Free Convection on a vertical tube set up. 5. Forced Convection Flow through a Pipe set up. 6. Emissivity of a Surface set up. 7. Stefan Boltzmann Constant set up. 8. Parallel Flow and Counter Flow Heat Exchangers set up. 9. Boiling of Liquid and Condensation of Vapour apparatus. 10. Vapour Compression Refrigeration test rig. 11. Vapour Compression Air - Conditioner test rig. 12. Transient Conduction Heat Transfer set up. 13. Pebble Bed Heater. 14. Fluidize Bed Chamber. 15. Electrical Analogy	6 Batches (18 Hrs per week)	1.Mr.S.M.Basavaraj 2.Mr.Basava prabhu	1. Instructor 2.Mechanic	1. ITI 2.ITI
10	Modelling & Analysis Lab	25	1.Computers 2. Server 3. Printer 4. Projector 5. Scanner 6. UPS 7. Fire Extinguisher	6 Batches (18 Hrs per week)	1.Mr.Taher Basha 2. Mr.Shivakumar Hiremath	1. Instructor 2.Instructor	1. ITI 2. Diploma
11	CIM Lab	25	1.Computers 2. Server 3. Printer 4. Scanner 5. Projector 6. UPS	6 Batches (18 Hrs per week)	1.Mr.G Nagaraj 2.Mr.Shivakumar Hiremath	1. Mechanic 2.Instructor	1. ITI 2. Diploma
12	Design Lab	25	1. Static and Dynamic Balancing Equipment. 2. Universal Governor Apparatus 3. Motorized Gyroscope 4. Whirling of shafts setup and Spares. 5. Journal Bearing Apparatus. 6. Polari scope 7. Vibration Set Up 8. Strain Gauge Rosette Apparatus	6 Batches (18 Hrs per week)	1.Mr.Nagabhushan 2. Mr.Prabhudev H	1. Asst. Instructor 2. Asst. Instructor	1. ITI 2.BSc
13	Workshop	30	Welding machines -3, Hand grinder, Drilling Machine, Power Hacksaw	All Program (10 Batches per week, 30 hrs per week)	1.Mr.M Vamadeva 2.Mr.Veerendra Patil	1. Instructor 2.Helper	1.ITI 2. ITI

6.2 Additional facilities created for improving the quality of learning experience in laboratories (25)

Total Marks 22.00  
Institute Marks : 22.00

Sr. No	Facility Name	Details	Reason(s) for creating facility	Utilization	Areas in which students are expected to have enhanced learning	Relevance to POs/PSOs
1	CNC vertical milling machine	ACE Micromatics 3-Axis machining center (Model 430V)	Content beyond syllabus , training students, R&D and Consultancy	Students, R&D work and Consultancy	Advanced Manufacturing	PO1 PO3 PO5 PSO1 PSO2
2	Industrial Robot for arc welding applications	YASKAWA, MOTOMAN arc welding robot	Content beyond syllabus , training students, R&D and Consultancy	Students, R&D work and Consultancy	Advanced Manufacturing	PO1 PO3 PO5 PSO1 PSO2
3	CNC machining center	MTAB milling machine 3-Axis machining	Content beyond syllabus , training students, R&D and Consultancy	Students, R&D work and Consultancy	Advanced Manufacturing	PO1 PO3 PO5 PSO1 PSO2
4	3D Printer	ULTIMAKER 3 EXTENDED	Content beyond syllabus , training students, R&D and Consultancy	Students, R&D work and Consultancy	Advanced Manufacturing	PO1 PO3 PO5 PSO1 PSO2
5	3D Scanner	EINSCAN SE 3D Scanner For Reverse Engineering	Content beyond syllabus , training students, R&D and Consultancy	Students, R&D work and Consultancy	Advanced Manufacturing	PO1 PO3 PO4 PO5 PSO1 PSO2
6	Imported Inverted Metallurgical Microscope with Real Time Based Live Image Analysis Software system	Daksh Quality System 14I Magnification with 10X eye piece, 100X,200X,300X, 400X & 1000X Magnification.	Content beyond syllabus, R&D and Consultancy	Students, R&D work and Consultancy	Material Testing	PO1 PO4 PO5 PSO2
7	Pin-on-disc wear testing machine	DUCOM Rotary Pin On Disc Tribometer	R&D & Consultancy	R&D work and Demonstration for the students	Material Testing	PO1 PO4 PO5 PSO1 PSO2
8	Feble bed heat exchanger	Heat transfer analysis	Content beyond syllabus, R&D & Consultancy	R&D work and Demonstration for the students	Energy Conversion	PO1 PO4 PSO1 PSO2
9	Emission test Rig	Natel make CO & HC determination	Content beyond syllabus , R&D & Consultancy	R&D work and Demonstration for the students	Energy Conversion	PO1 PO3 PO7 PSO2
10	MAT-Lab-software	R8.65/2015	Content beyond syllabus & R&D work	R&D work and Demonstration for the students	Industrial Design & analysis	PO1 PO3 PO4 PO5 PSO1
11	3D Experience Suite from Dassaults systems	3D Experience Suite comprise of 40 different tools for industrial design & development, research, digital manufacturing & consultancy	Content beyond syllabus to make students industry ready, R&D and consultancy	Training, R&D and consultancy	Industrial Design & Development, Digital Manufacturing and PLM	PO1 PO3 PO4 PO5 PSO1
12	MSC Software suite from MSC Softwares	MSC Software suite comprise of 73 different tools for analysis in different streams.	Content beyond syllabus to make students industry ready, R&D and consultancy	Training, R&D and consultancy	Industrial Design & analysis	PO1 PO3 PO4 PO5 PSO1
13	Robocell – V5	Software for Robot programming	Content beyond syllabus to make students industry ready and R&D	Training and R&D	Robotics	PO1 PO3 PO4 PO5 PSO1
14	ISRO FEAST	Software for linear , non linear and thermal analysis	Content beyond syllabus to make students industry ready, R&D and consultancy	Training, R&D and consultancy	Industrial Design & analysis	PO1 PO3 PO4 PO5 PSO1
15	nCyclo-Turn	Software for training on CNC turning	Content beyond syllabus to make students industry ready	Training	Digital Manufacturing	PO1 PO3 PO4 PO5 PSO1
16	nCyclo-Mill	Software for training on CNC milling.	Content beyond syllabus to make students industry ready.	Training	Digital Manufacturing	PO1 PO3 PO4 PO5 PSO1
17	CFD	CFD Software	Projects and Research	Students and Research scholars	Simulation and Testing	PO11 PO12 PSO1 PSO2
18	Laptops, Tabs and Projector	7 Dell Tabs / 3 Sony projector DX140, 3200 Lukmens, VGA Cable and Compaq Presario-2200 Laptop, intel celeron1.4 Ghz, 30 GB HDD, 256 MB RAM	PPTs and Seminar presentation	Students & Staff	Communication	PO5 PO10
19	Communication Lab	Globarena – Eclient Software	Enhance Communication Skill	Students & Staff	Language	PO5 PO10
20	Internet Facility	10Mbps	Essential tool for information & Communication	Students & Staff	Information & Communication	PO12
21	High end Work stations(21 Nos)	HP Z4G4 intel Xeon Processor, 32 GB RAM, 8GB Quadro Graphics	Training, R&D & Consultancy	Training, R&D and consultancy	Information Technology	PO4 PO5 PO12
22	High resolution Monitors (42 Nos)	HP Z22NFG2 dual Bezel monitors	Training, R&D & Consultancy	Training, R&D and consultancy	Information Technology	PO4 PO5 PO12

**6.3 Laboratories: Maintenance and overall ambiance (10)**

Total Marks 8.00

1. Classrooms and Laboratories are Well-equipped with state-of-art facilities to meet the requirements of academic curriculum.
2. Classrooms and Laboratories have good ambiance with proper ventilation and lighting.
3. Classrooms and Laboratories are provided with LED Projectors.
4. Maintenance of equipments, machines and instruments are carried out regularly as per the requirement.
5. Calibration of the instruments are carried out.
6. Technical and Supporting staff with required qualification are allotted to maintain the Laboratories.
7. Cleanliness and safety measures are strictly followed in Classrooms and Laboratories.

**6.4 Project laboratories (5)**

Total Marks 5.00  
Institute Marks : 5.00

1. The project laboratories have been established in the department to aid the students and faculties in project work and research.
2. Training program, hand on experience workshops will be conducted for students.
3. As per the guidance of faculty member the students will conduct tests related to the project work and fabrication facilities are also provided.
4. Network and internet facilities along with licensed softwares are provided to students and faculties.
5. A project lab with an area of 75 Sq Mtr is ear marked exclusively for the purpose of planning/ preparation /development of student project work and allied purposes.
6. The research lab is provided with well equipped arrangements to conduct tests. Hardness Tester, Live Image analyzer for metallurgical microscope, pin on disc setup, Analytical balance will used by students and faculties to study the aspects.
7. The old project reports and the project models are displayed in the project lab premises for the reference of students.
8. Supporting staff provide their undue support to students in completing the project work successfully.

**6.5 Safety measures in laboratories (10)**

Total Marks 10.00  
Institute Marks : 10.00

Sr. No	Laboratory Name	Safety Measures
1	CAED Lab	1) Do's and Don'ts statements and Safety charts are displayed in the laboratory. 2) For the safety of the equipment and wires, MCB and ELCB are provided. 3) For the safety of the workstations, it is provided with Uninterrupted Power Supply (40 KVA). 4) Workstation is provided with proper Earthing so that it will protect from internal faults. 5) The laboratory is provided with fire extinguishers. 6) The laboratory is provided with First Aid Kits, also in house medical aid facility is provided under emergency. 7) Lab is under CC Cameras surveillance
2	Workshop Lab	1) Do's and Don'ts statements and Safety charts are displayed in the laboratory. 2) For the safety of the equipment and wires, MCB and ELCB are provided. 3) For the safety of the students, they are instructed to wear a dress code with shoes. 4) Proper Earthing so that it will protect from internal faults. 5) The laboratory is provided with fire extinguishers. 6) The laboratory is provided with First Aid Kits, also in house medical aid facility is provided under emergency. 7) Lab is under CC Cameras surveillance
3	CAMD Lab	1) Do's and Don'ts statements and Safety charts are displayed in the laboratory. 2) For the safety of the equipment and wires, MCB and ELCB are provided. 3) For the safety of the workstations, it is provided with Uninterrupted Power Supply (40 KVA). 4) Workstation is provided with proper Earthing so that it will protect from internal faults. 5) The laboratory is provided with fire extinguishers. 6) The laboratory is provided with First Aid Kits, also in house medical aid facility is provided under emergency. 7) Lab is under CC Cameras surveillance

4	Material Testing Lab	1) Do's and Don'ts statements and Safety charts are displayed in the laboratory. 2) For the safety of the equipment and wires, MCB and ELCB are provided. 3) For the safety of the students, they are instructed to wear a dress code with shoes. 4) Proper Earthing so that it will protect from internal faults. 5) The laboratory is provided with fire extinguishers. 6) The laboratory is provided with First Aid Kits, also in house medical aid facility is provided under emergency. 7) Lab is under CC Cameras surveillance
5	Foundry & Forging Lab	1) Do's and Don'ts statements and Safety charts are displayed in the laboratory. 2) For the safety of the equipment and wires, MCB and ELCB are provided. 3) For the safety of the students, they are instructed to wear a dress code with shoes. 4) Proper Earthing so that it will protect from internal faults. 5) The laboratory is provided with fire extinguishers. 6) The laboratory is provided with First Aid Kits, also in house medical aid facility is provided under emergency. 7) Lab is under CC Cameras surveillance
6	Mechanical Measurements and Metrology Lab	1) Do's and Don'ts statements and Safety charts are displayed in the laboratory. 2) For the safety of the equipment and wires, MCB and ELCB are provided. 3) For the safety of the students, they are instructed to wear a dress code with shoes. 4) Proper Earthing so that it will protect from internal faults. 5) The laboratory is provided with fire extinguishers. 6) The laboratory is provided with First Aid Kits, also in house medical aid facility is provided under emergency. 7) Lab is under CC Cameras surveillance
7	Machine Shop Lab	1) Do's and Don'ts statements and Safety charts are displayed in the laboratory. 2) For the safety of the equipment and wires, MCB and ELCB are provided. 3) For the safety of the students, they are instructed to wear a dress code with shoes. 4) Proper Earthing so that it will protect from internal faults. 5) The laboratory is provided with fire extinguishers. 6) The laboratory is provided with First Aid Kits, also in house medical aid facility is provided under emergency. 7) Lab is under CC Cameras surveillance
8	Fluid Mechanics Lab	1) Do's and Don'ts statements and Safety charts are displayed in the laboratory. 2) For the safety of the equipment and wires, MCB and ELCB are provided. 3) For the safety of the students, they are instructed to wear a dress code with shoes. 4) Proper Earthing so that it will protect from internal faults. 5) The laboratory is provided with fire extinguishers. 6) The laboratory is provided with First Aid Kits, also in house medical aid facility is provided under emergency. 7) Lab is under CC Cameras surveillance
9	Energy Conversion Lab	1) Do's and Don'ts statements and Safety charts are displayed in the laboratory. 2) For the safety of the equipment and wires, MCB and ELCB are provided. 3) For the safety of the students, they are instructed to wear a dress code with shoes. 4) Proper Earthing so that it will protect from internal faults. 5) The laboratory is provided with fire extinguishers. 6) The laboratory is provided with First Aid Kits, also in house medical aid facility is provided under emergency. 7) Lab is under CC Cameras surveillance
10	Heat and Mass Transfer Lab	1) Do's and Don'ts statements and Safety charts are displayed in the laboratory. 2) For the safety of the equipment and wires, MCB and ELCB are provided. 3) For the safety of the students, they are instructed to wear a dress code with shoes. 4) Proper Earthing so that it will protect from internal faults. 5) The laboratory is provided with fire extinguishers. 6) The laboratory is provided with First Aid Kits, also in house medical aid facility is provided under emergency. 7) Lab is under CC Cameras surveillance

11	Modelling & Analysis Lab	1) Do's and Don'ts statements and Safety charts are displayed in the laboratory. 2) For the safety of the equipment and wires, MCB and ELCB are provided. 3) For the safety of the students, they are instructed to wear dress code. 4) Proper Earthing so that it will protect from internal faults. 5) The laboratory is provided with fire extinguishers. 6) The laboratory is provided with First Aid Kits, also in house medical aid facility is provided under emergency. 7) Lab is under CC Cameras surveillance
12	Design Lab	1) Do's and Don'ts statements and Safety charts are displayed in the laboratory. 2) For the safety of the equipment and wires, MCB and ELCB are provided. 3) For the safety of the students, they are instructed to wear a dress code with shoes. 4) Proper Earthing so that it will protect from internal faults. 5) The laboratory is provided with fire extinguishers. 6) The laboratory is provided with First Aid Kits, also in house medical aid facility is provided under emergency. 7) Lab is under CC Cameras surveillance
13	CIM & Automation Lab	1) Do's and Don'ts statements and Safety charts are displayed in the laboratory. 2) For the safety of the equipment and wires, MCB and ELCB are provided. 3) For the safety of the students, they are instructed to wear dress code. 4) Proper Earthing so that it will vprotect from internal faults. 5) The laboratory is provided with fire extinguishers. 6) The laboratory is provided with First Aid Kits, also in house medical aid facility is provided under emergency. 7) Lab is under CC Cameras surveillance

7 CONTINUOUS IMPROVEMENT (50)

Total Marks 40.00

7.1 Actions taken based on the results of evaluation of each of the POs & PSOs (20)

Total Marks 15.00

Institute Marks : 15.00

**POs Attainment Levels and Actions for Improvement- (2018-19)**

POs	Target Level	Attainment Level	Observations
<b>PO 1 : Engineering Knowledge</b>			
PO 1	2.74	2.4	As the PO is well addressed by most of the subjects, lower value of PO is due to low CO attainment in a few subjects. It needs better performance in these subjects.
Action 1 : More efforts will be put to improve attainment of each of the CO's in the subjects.			
<b>PO 2 : Problem Analysis</b>			
PO 2	2.44	2.12	The PO is addressed by most subjects at high correlation. More stress needs to be laid by assignments involving analysis of complex problems, using knowledge of basic sciences and mathematics.
Action 1 : Additional classes to be conducted to solve the engineering problems. Action 2 : More diverse problems to be taught in tutorial classes			
<b>PO 3 : Design/development of Solutions</b>			
PO 3	2.33	1.97	Design solutions offered by students generally do not show consideration for health, cultural, societal and environmental issues.
Action 1 : Design subject are taught with the help of NPTEL video presentation. Action 2 : More design classes to be taught in tutorial classes			
<b>PO 4 : Conduct Investigations of Complex Problems</b>			
PO 4	2.22	1.92	The Students are focusing less on the analysis of data, and presentation of results, in laboratory classes. Such effort is observed in project works only.
Action 1 : More examples on thermal and design to be conducted. Action 2 : Three days workshop on on Overview in Aerospace Domain by VTU on 5th to 7th March 2019			
<b>PO 5 : Modern Tool Usage</b>			
PO 5	2.29	2.10	The laboratory or practice periods are limited leading to less available time for practice on the software packages.
Action 1 : Additional classes to be conducted to introduce practical knowledge. Action 2 : Awareness Program on Automation Technology by Vastro Technology B'lore on 26th Sep 2018 Action 3 : Three days workshop on on Overview in Aerospace Domain by VTU on 5th to 7th March 2019			
<b>PO 6 : The Engineer and Society</b>			
PO 6	2	1.83	Attainment based on curriculum is low as it is addressed by only 50% of courses that too with low correlation
Action 1 : Practical approach of teaching method should be adapted. Action 2 : Students should be exposed to outside world to know and solve the problems of society. Action 3 : Three days workshop for students "Industrial Safety measures & Regulations" by Mr. Suresh Kumar Safety Engineer, JSW Steel Ltd. on 26th to 28 Apr 2019			
<b>PO 7 : Environment and Sustainability</b>			
PO 7	1.98	1.87	The target level is low due to limited coverage in curricular content, with only one course with focus on this PO
Action 1 : Examples on the pollution related problems to be practiced by students in extra classes. Action 2 : Plantation program by LEAD Students by RYMEC. Action 3 : One Day workshop on Marine Engineering by Mr. Shivasharannaiah Swamy, Asst. Prof. REVA university B'lore. on 3rd Oct 2018. Action 4 : Industrial Visit to BTPS, Ballari on 29th Oct 2018 Action 5 : Three days workshop for students "Industrial Safety measures & Regulations" by Mr. Suresh Kumar Safety Engineer, JSW Steel Ltd. on 26th to 28 Apr 2019			
<b>PO 8 : Ethics</b>			
PO 8	2.12	1.83	The PO is addressed by about few of the subjects but with low correlation.
Action 1 : Additional classes to be conducted on ethics. Action 2 : Additional workshops on ethics are to be conducted for students Action 3 : Three days workshop for students "Industrial Safety measures & Regulations" by Mr. Suresh Kumar Safety Engineer, JSW Steel Ltd. on 26th to 28 Apr 2019			
<b>PO 9 : Individual and Team Work</b>			
PO 9	2.43	2.27	There is scope for improvement of this outcome by participation of greater percentage of students in co-curricular activities.
Action 1 : Additional classes to be conducted to motivate students to do projects. Action 2 : Students should be sent to Industries to do project. Action 3 : Students should be sent to other colleges and universities to carryout project work. Action 4 : Industrial Visit to BTPS, Ballari on 29th Oct 2018 Action 5 : Industrial Visit to JSW, Ballari on 10th Nov 2018			
<b>PO 10 : Communication</b>			
PO 10	2.68	2.60	Attainment through curricular content is high, contribution from other activities to fill the curricular gap in this respect was low.
Action 1 : Additional classes to be conducted on communication skills. Action 2 : Orientation program for Students by RYMEC on 13th Aug 2018 Action 3 : Two Days Geometric Dimensions & Tolerances by Dept. of Mechanical Engg., RYMEC on 5th & 6th Oct 2018 Action 4 : GTT Training for Students by Dept. of Mechanical Engg., RYMEC on 9th to 12th Oct 2018 Action 5 : Zonal Level Mechanical Techno-Cultural fest - IRONICA, by Dept. of Mechanical Engg., RYMEC on 14th to 16th Nov 2018 Action 6 : JSW Steel Campus interview by RYMEC on 26th & 27th June 2019. Action 7 : Joulse to Watt Campus Drive by RYMEC on 11th May 2019			
<b>PO 11 : Project Management and Finance</b>			
PO 11	2.23	2.08	Very few subjects attend to the aspects of the PO, curricular attainment needs to be augmented by special efforts.
Action 1 : Additional classes and workshops to be conducted to manage Project Management and Finance related problems. Action 2 : Lectures by expert professionals will be arranged, focusing on these aspects.			
<b>PO 12 : Life-long Learning</b>			
PO 12	2.14	1.88	Students need to spend time on self-learning and studying subjects beyond curriculum.
Action 1 : Faculty will be asked to ensure that assignments will have a reasonable component which ensures that students go through material from various standard sources. Action 2 : short term programs to be conducted. Action 3 : Higher Studies Awareness Program by Pruthviraj N B on 11th Feb 2019 Action 4 : Three days workshop for students "Industrial Safety measures & Regulations" by Mr. Suresh Kumar Safety Engineer, JSW Steel Ltd. on 26th to 28 Apr 2019			

**POs Attainment Levels and Actions for Improvement- (2017-18)**

POs	Target Level	Attainment Level	Observations
<b>PO 1 : Engineering Knowledge</b>			
PO 1	2.83	2.43	As the PO is well addressed by most of the subjects, lower value of PO is due to low CO attainment in a few subjects. It needs better performance in these subjects.
Action 1 : More efforts will be put to improve attainment of each of the CO's in the subjects.			
<b>PO 2 : Problem Analysis</b>			
PO 2	2.46	2.12	The PO is addressed by most subjects at high correlation. More stress needs to be laid by assignments involving analysis of complex problems, using knowledge of basic sciences and mathematics.
Action 1 : Additional classes to be conducted to solve the engineering problems. Action 2 : More diverse problems to be taught in tutorial classes			
<b>PO 3 : Design/development of Solutions</b>			
PO 3	2.40	2.07	Design solutions offered by students generally do not show consideration for health, cultural, societal and environmental issues.
Action 1 : Design subject are taught with the help of NPTEL video presentation. Action 2 : More design classes to be taught in tutorial classes			
<b>PO 4 : Conduct Investigations of Complex Problems</b>			
PO 4	2.18	1.87	The Students are focusing less on the analysis of data, and presentation of results, in laboratory classes. Such effort is observed in project works only.
Action 1 : More examples on thermal and design to be conducted. Action 2 : Slow learners to be identified and more examples on thermal and design to be solved Action 3 : Training to be given on analysis and design software			
<b>PO 5 : Modern Tool Usage</b>			
PO 5	2.14	1.9	The laboratory or practice periods are limited leading to less available time for practice on the software packages.
Action 1 : Students should be exposed to software and hardware skills. Action 2 : One day awareness program on Technical Publication by AAPTA in association with Vision Software Solutions on 24th March 2018 Action 3 : Two Days works shop on CAD by CadMaxx Solutions B'lore on 23rd & 24th May 2018 Action 4 : C-Programming Training by RYMEC on 30th, 31st July & 1st Aug 2018			
<b>PO 6 : The Engineer and Society</b>			
PO 6	1.80	1.65	Attainment based on curriculum is low as it is addressed by only 50% of courses that too with low correlation
Action 1 : Practical approach of teaching method should be adapted. Action 2 : Students should be exposed to outside world to know and solve the problems of society. Action 3 : Two days workshop for students "Industrial Safety measures & Regulations" by Mr. Shanumaka Safety Engineer, HAL B'lore & Mr. Suresh Kumar Safety Engineer, JSW Steel Ltd. On 21st & 22nd May 2018			
<b>PO 7 : Environment and Sustainability</b>			
PO 7	1.94	1.73	The target level is low due to limited coverage in curricular content, with only one course with focus on this PO
Action 1 : Additional classes to be conducted on environment issues. Action 2 : Examples on the pollution related problems to be practiced by students in extra classes. Action 3 : More pollution problems will be given for practice/Assignments. Action 4 : Phoenix Green Campus plantation program by students by RYMEC on 27th Sep 2017 Action 5 : Two days workshop for students "Industrial Safety measures & Regulations" by Mr. Shanumaka Safety Engineer, HAL B'lore & Mr. Suresh Kumar Safety Engineer, JSW Steel Ltd. On 21st & 22nd May 2018			
<b>PO 8 : Ethics</b>			
PO 8	2.09	1.79	The PO is addressed by about few of the subjects but with low correlation.
Action 1 : Additional classes to be conducted on ethics. Action 2 : Additional workshops on ethics are to be conducted for students Action 3 : Teachers Day Celebration by Students by Dept. of Mechanical Engg., RYMEC on 5th Sep 2017 Action 4 : Phoenix Green Campus plantation program by students by RYMEC on 27th Sep 2017 5. Motivational Session by Yendamoori Veerandranath on 22nd Feb 2018 6. Two days workshop for students "Industrial Safety measures & Regulations" by Mr. Shanumaka Safety Engineer, HAL B'lore & Mr. Suresh Kumar Safety Engineer, JSW Steel Ltd. On 21st & 22nd May 2018			
<b>PO 9 : Individual and Team Work</b>			
PO 9	2.28	2	There is scope for improvement of this outcome by participation of greater percentage of students in co-curricular activities.
Action 1 : Additional classes to be conducted to motivate students to do projects. Action 2 : Students should be sent to Industries to do project. Action 3 : Students should be sent to other colleges and universities to carryout project work. Action 4 : One day Industrial Visit at M/S. Mcallus, Manufacturers of Orthopedic Implants & Instruments, Industry Industrial Area, Ballari on 9th May 2018			
<b>PO 10 : Communication</b>			
PO 10	2.24	1.8	Attainment through curricular content is high, contribution from other activities to fill the curricular gap in this respect was low.
Action 1 : Additional classes to be conducted on communication skills. Action 2 : Campus recruitment Training phase-II by Bizotic on 8th to 12th Aug 2017 Action 3 : Students participated in cultural meet for NAAC by Dept. of Mechanical Engg., RYMEC on 4th Sep 2017 Action 4 : C-Programme Training by RYMEC on 5th to 9th Sep 2017 5. Campus recruitment Training students by Bizotic on 5th to 9th Feb 2018 6. TCS Addressed to Students by TCS, B'lore on 02nd May 2018			
<b>PO 11 : Project Management and Finance</b>			
PO 11	2.13	1.9	Very few subjects attend to the aspects of the PO, curricular attainment needs to be augmented by special efforts.
Action 1 : Additional classes and workshops to be conducted to manage Project Management and Finance related problems. Action 2 : One day work shop on Startup Entrepreneurship & Capital funds by Sri. Manish Kumar, VP KAMC-B'lore on 10th March 2018			
<b>PO 12 : Life-long Learning</b>			
PO 12	2	1.78	Students need to spend time on self-learning and studying subjects beyond curriculum.



Action 1 : Additional classes to be conducted on thermal and design subjects. Action 2 : short term programs to be conducted. Action 3 : Two days workshop for students "Industrial Safety measures & Regulations" by Mr. Shanumaka Safety Engineer, HAL B'lore & Mr. Suresh Kumar Safety Engineer, JSW Steel Ltd. On 21st & 22nd May 2018

**POs Attainment Levels and Actions for Improvement- (2016-17)**

POs	Target Level	Attainment Level	Observations
<b>PO 1 : Engineering Knowledge</b>			
PO 1	2.8	2.45	As the PO is well addressed by most of the subjects, lower value of PO is due to low CO attainment in a few subjects. It needs better performance in these subjects.
Action 1 : More efforts will be put to improve attainment of each of the COs in the subjects.			
<b>PO 2 : Problem Analysis</b>			
PO 2	2.48	2.21	The PO is addressed by most subjects at high correlation. More stress needs to be laid by assignments involving analysis of complex problems, using knowledge of basic sciences and mathematics.
Action 1 : Additional classes to be conducted to solve the engineering problems. Action 2 : More diverse problems to be taught in tutorial classes			
<b>PO 3 : Design/development of Solutions</b>			
PO 3	2.38	2.13	Design solutions offered by students generally do not show consideration for health, cultural, societal and environmental issues.
Action 1 : Design subject are taught with the help of NPTEL video presentation. Action 2 : More design classes to be taught in tutorial classes			
<b>PO 4 : Conduct Investigations of Complex Problems</b>			
PO 4	2.20	1.92	The Students are focusing less on the analysis of data, and presentation of results, in laboratory classes. Such effort is observed in project works only.
Action 1 : Additional classes to be conducted on Complex Problems . Action 2 : More examples on thermal and design to be conducted. Action 3 :training to be given on analysis and design software.			
<b>PO 5 : Modern Tool Usage</b>			
PO 5	2.18	2.15	The laboratory or practice periods are limited leading to less available time for practice on the software packages.
Action 1 : Additional classes to be conducted to introduce practical knowledge. Action 2 :One Day students seminar on CAD/CAM/CAE(UG-NX) by CADMAX Solutions Bengaluru on 17th Mar 2017			
<b>PO 6 : The Engineer and Society</b>			
PO 6	1.825	1.60	Attainment based on curriculum is low as it is addressed by only 50% of courses that too with low correlation
Action 1 : Practical approach of teaching method should be adapted. Action 2 :Students should be exposed to outside world to know and solve the problems of society.			
<b>PO 7 : Environment and Sustainability</b>			
PO 7	1.93	1.84	The target level is low due to limited coverage in curricular content, with only one course with focus on this PO
Action 1 : Additional classes to be conducted on environment issues. Action 2 : Examples on the pollution related problems to be practiced by students in extra classes. Action 3 : More pollution problems will be given for practice/Assignments.			
<b>PO 8 : Ethics</b>			
PO 8	2.25	1.97	The PO is addressed by about few of the subjects but with low correlation.
Action 1 : Additional classes to be conducted on ethics. Action 2 :Additional workshops on ethics are to be conducted for students Action 3 : Conducted One day invited talk on "Reengineering- The Life Style" by Sri. Swamy Chidrupananda Saraswati on 1st Apr 2017.			
<b>PO 9 : Individual and Team Work</b>			
PO 9	2.22	1.96	There is scope for improvement of this outcome by participation of greater percentage of students in co-curricular activities.
Action 1 : Additional classes to be conducted to motivate students to do projects. Action 2 : Students should be sent to Industries to do project. Action 3 : Students should be sent to other colleges and universities to carryout project work. Action 4 : One Day Industrial Visit for Pre final year students Organized at EMD Loco shed & Carriage workshop, Southern Western railways, Hubballi on 19th Aug 2016 5.One Day Industrial Visit for Final Year Students Organized at M/S. Mcallus, Manufacturers of Orthopedic Implants & Instruments and M/S. HalleysBlue Steels Pvt Ltd, Mundargi Industrial Area, Ballari on 19th Oct 2016 6.Conducted Three Day Workshop on ENGINE TECHNOLOGY by M/S Rectangle Automotive Technologies LLP, Davanagere on 26th to 28th Oct 2016			
<b>PO 10 : Communication</b>			
PO 10	2.17	2.15	Attainment through curricular content is high, contribution from other activities to fill the curricular gap in this respect was low.
Action 1 : Additional classes to be conducted on communication skills. Action 2 : Conducted Student Seminar on 'Indhan Samrakshan ki Zimmedari, Jan Gan ki Bhagidari' by Indian Oil Corporation on 13th Feb 2017 Action 3 :Conducted Design Aptitude Test by CADMAX Solutions Bengaluru on 6th Mar 2017 Action 4 :Conducted One Day students seminar on CAD/CAM/CAE(UG-NX) by CADMAX Solutions Bengaluru on 17th Mar 2017 5.Student Forum - Mech "Tantrika" Organized by Dept. of Mechanical Engg.,RYMEC on 26th May 2017			
<b>PO 11 : Project Management and Finance</b>			
PO 11	2.125	1.94	Very few subjects attend to the aspects of the PO, curricular attainment needs to be augmented by special efforts.
Action 1 : Additional classes and workshops to be conducted to manage Project Management and Finance related problems.			
<b>PO 12 : Life-long Learning</b>			
PO 12	1.98	1.70	Students need to spend time on self-learning and studying subjects beyond curriculum.
Action 1 :Additional classes to be conducted on thermal and design subjects. Action 2 :short term programs to be conducted.			

#### PSOs Attainment Levels and Actions for Improvement- (2018-19)

PSOs	Target Level	Attainment Level	Observations
<b>PSO 1 : Graduates are able to Design, Analyze and Develop Mechanical Systems</b>			
PSO 1	2.15	1.90	Department encourages fabrication oriented final year projects, and also participation in competitive events, there is scope to improve the attainment in view of the encouragement given to students to design and build mechanical systems.
Action 1 : Practical approach of developing the systems to be adapted. Action 2 :Efforts will be made to involve major percentage of students by offering more number of peojects involving design and / fabrication towards curricular requirement			
<b>PSO 2 : Graduates are Capable of Developing Research Skills in Self Sustainable Energy sources and Composite Materials.</b>			
PSO 2	2.03	1.72	Few students not involving in accessing and use of research information. there is scope to improve by special training classes on industry oriented software applications.
Action 1 : Additional classes to be conducted on research skills. Action 2 : Practical approach on optimized use of research skills on energy sources and composite material to be adapted.			

#### PSOs Attainment Levels and Actions for Improvement- (2017-18)

PSOs	Target Level	Attainment Level	Observations
<b>PSO 1 : Graduates are able to Design, Analyze and Develop Mechanical Systems</b>			
PSO 1	2.29	1.82	Department encourages fabrication oriented final year projects, and also participation in competitive events.
Action 1 : Additional classes to be conducted to fabricate designed mechanical systems. Action 2 : Practical approach of developing the systems to be adapted.			
<b>PSO 2 : Graduates are Capable of Developing Research Skills in Self Sustainable Energy sources and Composite Materials.</b>			
PSO 2	2.09	1.62	Few students not involving in accessing and use of research information. there is scope to improve by special training classes on industry oriented software applications.
Action 1 : Additional classes to be conducted on research skills. Action 2 : Practical approach on optimized use of research skills on energy sources and composite material to be adapted.			

#### PSOs Attainment Levels and Actions for Improvement- (2016-17)

PSOs	Target Level	Attainment Level	Observations
<b>PSO 1 : Graduates are able to Design, Analyze and Develop Mechanical Systems</b>			
PSO 1	2.32	1.93	Department encourages fabrication oriented final year projects, and also participation in competitive events.
Action 1 : Additional classes to be conducted to fabricate designed mechanical systems. Action 2 : Practical approach of developing the systems to be adapted.			
<b>PSO 2 : Graduates are Capable of Developing Research Skills in Self Sustainable Energy sources and Composite Materials.</b>			
PSO 2	2.08	1.72	Few students not involving in accessing and use of research information.
Action 1 : Additional classes to be conducted on research skills. Action 2 : Practical approach on optimized use of research skills on energy sources and composite material to be adapted.			

#### 7.2 Academic Audit and actions taken thereof during the period of Assessment (10)

Total Marks 9.00

Institute Marks : 9.00

#### **Academic Audit Report For The Academic Year 2016-17 To 2018-19**

Academic audits are conducted in order to monitor and evaluate the teaching learning process.. Audits are conducted for teaching learning process, laboratory maintenance and departmental activities.

The Internal Quality Assurance Cell (IQAC) as per the guidelines of NACC and UGC, whose major responsibility is to conduct periodical audits and take corrective/preventive measures for assuring/improving the academic performance.

#### **Audit Process and its implementation:**

1. Professor Dr. Veeragangadhara Swamy T.M of Computer Science & Engineering is the IQAC Convener. He with the consensus of the Principal and IQAC members constitutes a committee for assessing the academic performance of the different departments.
2. Academic audit isconductedfor every year and the details are mentioned below:

**Table:7.1 Audit Details**

SI No	Audit Date	Audit Members	Remarks
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01	12/06/2017	1. Mr. Raghu Kumar K S Asst Prof, CSE,RYMEC 2. Mr. Shiva Kumar V Asst Prof, CSE,RYMEC	NBA Internal audit Committee
02	19/12/2018	1. Dr. Mohamed Rafi Prof, CSE UBDT Davangere	Academic audit by IQAC
03	28/06/2019	1. Dr.Girish H Prof, CSE,RYMEC 2. Mr. Shiva Kumar V Asst Prof, CSE,RYMEC	NBA Internal audit Committee
04	16/09/2019	1. Dr. Veeragangadharaswamy T.M, Prof, CSE,RYMEC 2. Mrs. RakheePatil Prof, ECE,RYMEC 3. Mr Shivananda K B Asst. Placement Officer,RYMEC	Administrative audit by IQAC
05	04/11/2019	1. Dr.Prashanth B.G Prof. Dept of Mech. JSS academy of Technical education Bengaluru. 2. Dr. BhimasenSoragaon. Prof. Dept of Mech. JSS academy of Technical education Bengaluru.	Academic audit by IQAC

3. The audit committee will visit the department as per the schedule given by the IQAC to inspect the effectiveness of academic process implementation.

**Faculty audit:** The following are the records of the faculty members that are verified during the internal academic audits.

- Calendar of Events.
- Lesson Plan, Execution Plan.
- Syllabus, Attendance Registers.
- Individual Time Table.
- IA Question Paper, Scheme of Evaluation And Assignment Questions.
- Model Question Papers, Previous University Question Papers.
- Lab Records, Lab Manuals, Ledger
- Course File
- Personal File
- Remedial and Tutorial Class Records.
- Result Analysis
- Counseling and Mentoring Records.
- Additional Resources to Students (Notes,PPT, Etc.)
- Co-Curricular Activities: Seminar/Conference/Workshop/Guest Lecture Conducted And Attended.
- Industrial Visits, Faculty Achievements: Paper publications, Books etc.
- Feedback mechanism for assessing the Teaching-Learning Process.

5. Audit committee submits the report of audit to the IQAC Convener and also shares it with the concerned Head of the Department.

6. IQAC Convener and members do the analysis of the report and initiates the corrective measures as necessary with the department.

7. The Head of the department discuss the audit findings with the faculty and prepares plan of action in the DAC meeting for addressing any concern(s) identified by the auditor.

8. Department Submits the Action taken report with respect to audit report to IQAC.

**Corrective Measures for the improvement of academic performance.**

**Feedback from students – Course Exit Survey:** A questionnaire about the course is prepared by the course coordinator and the program - coordinator for the students. This serves as a feedback at end of the semester to gauge the degree of attainment of POs and PSOs.

**Feedback from parents:** The Program coordinator will collect the feedback from parents about their experience and their opinion on the program. This activity is carried out once in every semester for the betterment of the system.

**Feedback from the academic/industry experts:** Curriculum reviews by Industry/Academic experts provide a broad-based internal and external feedback regarding the relevance and organization of a program's curriculum. Their feedback serves as an evidence for assessing significant changes (individual course competencies) required within a program when the change is inevitable.

**Feedback from alumni:** A questionnaire is prepared by the program and course coordinator and is given to the alumni. It will be done once in every year on August 15 to gauge the degree of attainment of POs and PSOs. Open ended questions/experiments in the lab Open ended questions are designed for which students formulate meaningful solutions using subject knowledge. These open-ended questions tend to be more objective and less leading than closed-ended questions.

### 7.3 Improvement in Placement, Higher Studies and Entrepreneurship (10)

Total Marks 8.00

Institute Marks : 8.00

#### Improvement in Placement, Higher Studies and Entrepreneurship.

A. Placements: Numbers, Quality placement, Core industry, Pay Packages, etc.

2015-16

Sl.no	Name of the company	Total no of students	Pay Package/Annum in Rs	Average Pay Package/Annum in Rs
1.	TCS	11	333475	Rs.172737.5/-
2.	GOOD THROUGH	1	240000	
3.	POMPEII	11	305000	
4.	FKL INDIA	1	200000	
5.	JSW STEEL	1	374000	
6.	LINDE INDIA	1	120000	

2016-17

Sl.no	Name of the company	Total no of students	Pay Package/Annum in Rs	Average Pay Package/Annum in Rs
1.	TCS	7	336875	Rs.238027.5/-
2.	WELDCRAFT	1	180000	
3.	SHRIRAM	2	216000	
4.	TECH MAHINDRA	6	139200	
5.	SLK	2	240000	

2017-18

Sl.no	Name of the company	Total no of students	Pay Package/Annum in Rs	Average Pay Package/Annum in Rs
1.	TCS	11	336875	Rs.258437.5/-
2.	SLK SOFTWARES	3	280000	
3.	SHRIRAM	12	244920	
4.	BMM ISPAT	7	192000	
5.	YANTRA DIGITAL SERVICES	4	250000	
6.	PATH FRONT	4	250000	
7.	HALLEYS BLUE	4	282115	
8.	PINCLICK	10	240000	
9.	VeeTechnologies	12	180000	

The average pay package per annum for the academic year 2015-2016 is Rs.172737.5/- , for the academic year 2016-2017 is Rs.238027.5/- and that of for the academic year is Rs.258437.5/- and hence there is a improvement in the on campus placement.

**B. Higher Education:**YEAR 2015-16

SL NO	NAME	USN	COLLEGE NAME
1.	DIWAKAR REDDY G	3VC12ME026	MBA-BANGALORE UNIVERSITY
2.	B.VIJAYAKUMARA	3VC12ME011	M-TECH-BITM BELLARY
3.	MANJUNATH U	3VC12ME055	M-TECH-UBDT DAVANGERE
4.	MD IBRAHIM B	3VC12ME063	M-TECH-UBDT DAVANGERE
5.	PRAKASH PATIL	3VC12ME073	MBA RV COLLEGE BANGALORE

YEAR 2016-17

SL NO	NAME	USN	COLLEGE NAME
1.	MD NAZIM SHAIK K	3VC13ME055	MTECH-RYMEC BELLARY
2.	JAYKUMAR.S	3VC13ME039	POST DIPLOMA IN INDUSTRIAL SAFETY COURSE. JSW STEEL TORANAGALLU
3.	K SANJEEVA	3VC13ME042	POST DIPLOMA IN INDUSTRIAL SAFETY COURSE. JSW STEEL TORANAGALLU
4.	K HANUMANTHA	3VC13ME041	POST DIPLOMA IN INDUSTRIAL SAFETY COURSE. JSW STEEL TORANAGALLU

YEAR 2017-18

SL NO	NAME	USN	COLLEGE NAME
1.	GIREESH AGRAHARA K S	3VC14ME028	MTECH-VTU UNIVERSITY
2.	MD.MUSHTAQ	3VC14ME056	MTECH-PESIT BANGALORE
3.	VINAYKUMAR J	3VC14ME120	MTECH-VIT VELLORE
4.	ABHISHEK BR	3VC14ME003	MBA-MS RAMAIAH BANGALORE

our students have appeared in various competitive exams for higher studies, and have opted for premier institutions. thus improvement in this category.

**C. Entrepreneur.**

Sl.No	Year	Entrepreneur
1.	2015-16	4
2.	2016-17	1

3.	2017-18	2
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our students becoming entrepreneurs depends on factors such as market analysis, generation of funds, technical management, marketing management, financial management and psychological support. and all these factors demand certain time period to gain experiential knowledge. Hence there is a improvement in this category.

#### 7.4 Improvement in the quality of students admitted to the program (10)

Total Marks 8.00

Institute Marks : 8.00

Item		2018-19	2017-18	2016-17
National Level Entrance Examination	No of students admitted	0	0	0
	Opening Score/Rank	0	0	0
	Closing Score/Rank	0	0	0
State/ University/ Level Entrance Examination/ Others CET	No of students admitted	64	82	114
	Opening Score/Rank	13186	42234	15739
	Closing Score/Rank	142154	156818	123075
Name of the Entrance Examination for Lateral Entry or lateral entry details Lateral Entry	No of students admitted	65	53	49
	Opening Score/Rank	365	206	733
	Closing Score/Rank	13169	15447	11317
Average CBSE/Any other board result of admitted students(Physics, Chemistry&Maths)		0	0	86

#### 8 FIRST YEAR ACADEMICS (50)

Total Marks 40.56

##### 8.1 First Year Student-Faculty Ratio (FYSFR) (5)

Total Marks 5.00

Institute Marks : 5.00

Please provide First year faculty information considering load for the particular program

Name of the faculty member	PAN No.	Qualification	Area of Specialization	Designation	Date of joining	Teaching load (%)			Currently Associated(Yes/No)	Nature Of Association(Regular/Contract)	Date Of leaving(In case Currently Associated is 'No')
						CAY	CAYm1	CAYm2			
Dr.J.Phakirapp	ABZPP1752G	M.Sc. and PhD	FLUDYNNUML	Professor	24/02/1988	100	100	100	Yes	Regular	
Dr.Sumangala.	BJOPS5236E	M.Sc. and PhD	DIFFERENTIA	Associate Professor	23/07/2015	100	100	100	Yes	Regular	
H.M.manjunatr	AFSPM3162L	M.Sc	FLUID DYNAM	Assistant Professor	10/11/1997	100	100	100	Yes	Regular	
K.Sangameshw	AMJPK1027C	M.Sc	FLUID DYNAM	Assistant Professor	08/12/1997	100	100	100	Yes	Regular	
Dr.P.Shaikshav	BUGPS5396N	M.Sc. and PhD	FLUID DYNAM	Assistant Professor	23/02/2006	100	100	100	Yes	Regular	
A.Sivamma	DGXPS2403B	M.Sc	FUZZY SETS	Assistant Professor	13/08/2007	100	100	100	Yes	Regular	
Dr.Shruti R	BOLPR2695G	M.Sc. and PhD	GRAPH THEO	Assistant Professor	27/07/2012	100	100	0	Yes	Regular	
Dr.Nagabhushi	AHJPN8422B	M.Sc. and PhD	PHYSICS	Assistant Professor	24/08/2016	100	100	100	Yes	Regular	
Dr.Nagaraj N	AHHPN0995R	M.Sc. and PhD	PHYSICS	Professor	24/01/2018	100	100	0	Yes	Regular	
Bhagya K R	BPGPB2907F	M.Sc	MOLECULAR	Assistant Professor	01/08/2009	100	100	100	Yes	Regular	
AnandThipper	AFKPT7174B	M.Sc	PHYSICS	Assistant Professor	27/08/2012	100	100	100	Yes	Regular	
Dr.Hiremath St	ABDPB5162C	M.Sc. and PhD	ORGANIC CHEM	Professor	02/02/1987	100	100	100	Yes	Regular	
Dr.Kottureshw	ACQPN3434K	M.Sc. and PhD	PHYSICAL CHEM	Professor	01/01/2003	100	100	100	Yes	Regular	

M.Jayashree	AHNPJ0297Q	M.Sc	ORGANIC CHEMISTRY	Assistant Professor	01/09/2002	100	100	100	Yes	Regular	
R M Sunitha	EEQPS7963A	M.Sc	ORGANIC CHEMISTRY	Assistant Professor	01/09/2010	100	100	100	No	Regular	30/06/2019
R.P.Rajeshwar	AMUPR4622F	M.E/M.Tech	CSE	Assistant Professor	30/11/2006	100	0	100	Yes	Regular	
Jagadeesh G N	AHKPJ7367G	M.E/M.Tech	CSE	Assistant Professor	11/01/2018	100	0	0	Yes	Regular	
Shivaprasad K	CCEPK3972P	M.E/M.Tech	CCT	Assistant Professor	01/08/2011	100	0	100	Yes	Regular	
Punneth GJ	BTPP9481M	M.E/M.Tech	COMPUTER SCIENCE	Assistant Professor	13/10/2014	100	100	0	Yes	Regular	
SwamyAradhy	AHOPA1959P	MCA	PCM	Assistant Professor	13/08/2008	100	100	0	Yes	Regular	
A T Satya Nar	BGAPS9165H	MCA	Electronics	Assistant Professor	04/09/2003	100	100	100	Yes	Regular	
K B Shivanand	BEMPS5384A	MCA	Electronics	Assistant Professor	30/09/2003	100	100	100	Yes	Regular	
B Mallikarjuna	BLTPM0095G	MCA	Computers	Assistant Professor	01/01/2010	100	0	0	Yes	Regular	
Achyuthaanant	AIWPA1969Q	M.E/M.Tech	TOOL DESIGN	Assistant Professor	12/09/2013	100	100	100	Yes	Regular	
B Basavaprak	AGRPP5813I	M.E/M.Tech	THERMAL POWER ENGINEERING	Assistant Professor	02/08/2014	100	100	100	Yes	Regular	
V Chetan	AOLPV8561L	M.E/M.Tech	CAMS	Assistant Professor	01/08/2014	100	0	0	Yes	Regular	
H M Naveen	AGRPP4813H	M.E/M.Tech	MACHINE DESIGN	Assistant Professor	04/08/2014	100	0	0	Yes	Regular	
Rajashekar K	BLKPR3121P	M.E/M.Tech	DIGITAL ELECTRONICS	Assistant Professor	02/08/2014	100	0	0	Yes	Regular	
Shasidhar R	ASMPR9050K	M.E/M.Tech	Power Electronics	Assistant Professor	17/04/2017	100	0	0	Yes	Regular	
R Basava Raj	DAIPP8552B	M.E/M.Tech	STRUCTURAL ENGINEERING	Assistant Professor	23/07/2018	100	100	0	No	Regular	29/06/2019
Mubarak Moha	CHCPM7552G	M.E/M.Tech	SURVEYING	Assistant Professor	02/04/2018	100	100	0	No	Regular	13/05/2019
Monica Bhutad	CNBPB9046H	M.E/M.Tech	CASE	Assistant Professor	23/08/2017	100	100	0	No	Regular	06/05/2019
Vinay A	AROPA1220B	M.E/M.Tech	CNE	Assistant Professor	18/07/2011	100	0	0	Yes	Regular	
Kumuda B	CSTPK3011L	M.E/M.Tech	Digital Electronics	Assistant Professor	16/08/2012	100	0	0	Yes	Regular	
Nagaraj Goud	AJYPN4580D	M.E/M.Tech	VLSI	Assistant Professor	22/04/2017	100	0	0	Yes	Regular	
H Victor Raviki	AEHPH2429H	MA	ENGLISH	Assistant Professor	01/02/2018	100	100	0	Yes	Regular	
Pushpa B M	CQTPP7389E	MA	ENGLISH	Assistant Professor	23/08/2018	100	0	0	Yes	Regular	
Dr.Chandra Gc	AIKPC9836A	ME/M. Tech and PhD	ALTERNATIVE ENERGY	Assistant Professor	20/01/2009	100	100	100	No	Regular	04/09/2019
B.Veeresh	ACKPV6194N	M.Sc	FLUID DYNAMICS	Assistant Professor	11/11/2000	0	0	100	Yes	Regular	
SHIVARAJ P	DPWPS7576B	MCA	CSE	Assistant Professor	21/07/2011	100	0	0	Yes	Regular	
K.S.Aparna	ALGPA6872M	M.E/M.Tech	CNE	Assistant Professor	14/02/2007	0	0	100	Yes	Regular	
K.Suresh	AYOPS7651P	M.E/M.Tech	CSE	Assistant Professor	01/08/2011	0	0	100	Yes	Regular	
B.Veerasha Gc	AGNPV1571A	M.E/M.Tech	CSE	Assistant Professor	01/08/2013	0	100	0	Yes	Regular	
Sridevi Malipat	CNNPM1062J	M.E/M.Tech	CSE	Assistant Professor	01/08/2013	0	100	0	Yes	Regular	
Prasanna Kum	CLQPP0180B	M.E/M.Tech	CSE	Assistant Professor	20/10/2016	0	100	0	Yes	Regular	



Prashanth Ken	BMPK6538F	M.E/M.Tech	DECS	Assistant Professor	04/08/2014	0	100	100	Yes	Regular	
Vani H	APGPV5271B	M.E/M.Tech	VLSIAND ESD	Assistant Professor	01/08/2014	0	100	100	Yes	Regular	
udharshanBan	EKMPS3714M	M.E/M.Tech	DECS	Assistant Professor	01/08/2014	0	100	100	Yes	Regular	
Nagaraj M K	BFGPK0562M	M.Sc	NUCLEAR PH'	Assistant Professor	30/01/2008	0	0	100	No	Regular	09/01/2018
S.Kotresh	AYLPS5544G	M.E/M.Tech	Biomedical inst	Associate Professor	18/03/2006	0	100	100	Yes	Regular	
Shambulingan	CILPS9805G	M.E/M.Tech	Electrical Main	Assistant Professor	27/08/2007	0	100	100	Yes	Regular	
T. Naga Anush	ASZPA7618M	M.E/M.Tech	STRUCTURAL	Assistant Professor	04/08/2015	0	0	100	No	Regular	01/05/2018
Shadakshari M	FCIPS1171K	M.E/M.Tech	STRUCTURAL	Assistant Professor	08/01/2016	0	0	100	No	Regular	11/05/2018
Ashwini.R	BBKPA1674J	M.E/M.Tech	STRUCTURAL	Assistant Professor	08/08/2016	0	0	100	No	Regular	19/05/2018
Vittal Rao Cha	APPPC2984R	M.E/M.Tech	PRODUCTION	Assistant Professor	25/07/2011	0	100	100	No	Regular	30/06/2018
Chidananda M	BUVPC8870Q	M.E/M.Tech	MACHINE DES	Assistant Professor	23/02/2015	0	0	100	No	Regular	14/06/2017
M Balaji	ALXPB1671J	M.E/M.Tech	PRODUCTION	Assistant Professor	05/10/2001	0	100	0	Yes	Regular	
Shaik Ghouse	AWAPM6628G	MA	LINGUSTIC	Assistant Professor	11/02/2017	0	0	100	No	Regular	30/06/2018

Year	Number Of Students(approved intake strength) N	Number of Faculty members(considering fractional load) F	FYSFR (N/F)	*Assessment=(5*20)/FYSFR(Limited to Max.5)
2016-17(CAYm2)	600	35	17	5
2017-18(CAYm1)	600	36	17	5
2018-19(CAY)	760	39	19	5
<b>Average</b>	653	36	17	5

### 8.2 Qualification of Faculty Teaching First Year Common Courses (5)

Total Marks 4.33

Institute Marks : 4.33

Year	x (Number Of Regular Faculty with Ph.D)	y (Number Of Regular Faculty with Post graduate Qualification)	RF (Number Of Faculty Members required as per SFR of 20:1)	Assessment Of Faculty Qualification [ (5x + 3y) / RF ]
2016-2017	8	34	30	4.00
2017-2018	8	37	30	5.00
2018-2019	9	37	38	4.00

Average Assessment: 4.33

### 8.3 First Year Academic Performance (10)

Total Marks 5.23

Institute Marks : 5.23

Academic Performance	2018-19	2017-18	2016-17
Mean of CGPA or mean percentage of all successful students(X)	6.51	6.30	5.81
Total Number of successful students(Y)	74.00	83.00	90.00
Total Number of students appeared in the examination(Z)	87.00	96.00	111.00
API [X*(Y/Z)]	5.54	5.45	4.71

Average API[ (AP1+AP2+AP3)/3 ] : 5.23

Assessment [ 1.5 \* Average API ] : 5.23

### 8.4 Attainment of Course Outcomes of first year courses (10)

Total Marks 8.00

## ACADEMIC Year 2018-19

2018-19

- Three internal tests for a maximum mark of 50 are conducted and reduced to 30marks, average of three internals is considered. The remaining 10 marks shall be awarded based on the evaluation of assignment/unit tests/written quizzes that support to cover some of the course/program outcomes and added to the average internal assessment test marks. The final marks out of 40 are considered as CIE marks.
- The performance of a student in internal assessment with respect to the CO's is recorded.
- End Semester university exam performance of student for the maximum mark of 100 is conducted. 60% of the marks is considered as external exam performance.
- The summation of these two performances is considered as cumulative assessment for a prescribed course out come.
- Continuous Internal Evaluation (CIE) and Semester End Examinations (SEE) to constitute the major evaluation prescribed for each course. SEE and CIE to carry 60% and 40% respectively, to enable each course to be evaluated for 100 marks, irrespective of its credits.
- For Laboratory assessment, the performance of a student in conduction of each experiment, final lab internal test and external lab exam is considered. Marks are awarded by SEE and CIE to carry 60% and 40% respectively.

**2018-19: CBCS Scheme**

Assessment	Marks
IA	50 MARKS (Reduced to 30marks)
Assignment /Quiz/Test	10
Total for IA	40
External Exam (SEE)	60 (100 marks reduced to 60%)
<b>Total</b>	<b>100</b>

## ACADEMIC Year 2017-18

2017-18	<ul style="list-style-type: none"> <li>Three internal tests for a maximum mark of 30 are conducted and average of three internals is considered. The remaining 10 marks shall be awarded based on the evaluation of assignment/unit tests/written quizzes that support to cover some of the course/program outcomes and added to the average internal assessment test marks. The final marks out of 40 are considered as CIE marks.</li> <li>The performance of a student in internal assessment with respect to the CO's is recorded.</li> <li>End Semester university exam performance of student for the maximum mark of 100 is conducted. 60% of the marks is considered as external exam performance.</li> <li>The summation of these two performances is considered as cumulative assessment for a prescribed course out come.</li> <li>Continuous Internal Evaluation (CIE) and Semester End Examinations (SEE) to constitute the major evaluation prescribed for each course. SEE and CIE to carry 60% and 40% respectively, to enable each course to be evaluated for 100 marks, irrespective of its credits.</li> <li>For Laboratory assessment, the performance of a student in conduction of each experiment, final lab internal test and external lab exam is considered. Marks are awarded by SEE and CIE to carry 60% and 40% respectively.</li> </ul> <p style="text-align: center;"><b>2017:CBCS scheme</b></p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Assessment</th> <th>Marks</th> </tr> </thead> <tbody> <tr> <td>IA</td> <td>30</td> </tr> <tr> <td>Assignment /Quiz/Test</td> <td>10</td> </tr> <tr> <td>Total for IA</td> <td>40</td> </tr> <tr> <td>External Exam (SEE)</td> <td>60 (100 marks reduced to 60%)</td> </tr> <tr> <td><b>Total</b></td> <td><b>100</b></td> </tr> </tbody> </table>	Assessment	Marks	IA	30	Assignment /Quiz/Test	10	Total for IA	40	External Exam (SEE)	60 (100 marks reduced to 60%)	<b>Total</b>	<b>100</b>
Assessment	Marks												
IA	30												
Assignment /Quiz/Test	10												
Total for IA	40												
External Exam (SEE)	60 (100 marks reduced to 60%)												
<b>Total</b>	<b>100</b>												

**ACADEMIC Year 2016-17**

2016-17	<ul style="list-style-type: none"> <li>Three internal tests for a maximum mark of 30 are conducted and reduced to 15 marks, best of two internal is considered. The remaining 5 marks shall be awarded based on the evaluation of assignment/unit tests/written quizzes. The final marks out of 20 are considered as CIE marks.</li> <li>The performance of a student in internal assessment with respect to CO's is recorded.</li> <li>End semester university exam performance of students for the maximum mark of 80 is considered for external exam performance.</li> <li>The summation of these two performances is considered as cumulative assessment for a prescribed course out come.</li> <li>For laboratory assessment, the performance of a student in conduction of each experiment (10 marks), final lab internal test (10marks) and external lab exam (80 marks) is considered.</li> </ul> <p style="text-align: center;"><b>2015:CBCS scheme</b></p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Assessment</th> <th>Marks</th> </tr> </thead> <tbody> <tr> <td>IA</td> <td>15</td> </tr> <tr> <td>Assignment /Quiz/Test</td> <td>5</td> </tr> <tr> <td>Total for IA</td> <td>20</td> </tr> <tr> <td>External Exam (SEE)</td> <td>80</td> </tr> <tr> <td><b>Total</b></td> <td><b>100</b></td> </tr> </tbody> </table>	Assessment	Marks	IA	15	Assignment /Quiz/Test	5	Total for IA	20	External Exam (SEE)	80	<b>Total</b>	<b>100</b>
Assessment	Marks												
IA	15												
Assignment /Quiz/Test	5												
Total for IA	20												
External Exam (SEE)	80												
<b>Total</b>	<b>100</b>												

DIRECT ATTAINMENT

<b>Attainment Tools used for Direct Attainment are</b>
<ol style="list-style-type: none"> <li>Internal Assessment Test</li> <li>Final Examination</li> <li>Assignment</li> </ol>
1. Internal Assessment Test -30% weightage to Internal Assessment
<ul style="list-style-type: none"> <li>60% of students score more than 60% marks out of the relevant marks</li> <li>70% of students score more than 60% marks out of the relevant marks</li> <li>80% of students score more than 60% marks out of the relevant marks</li> </ul>
<b>Attainment Level 1:</b> 60% of students score more than or equal to 18 marks out of the 30 marks
<b>Attainment Level 2:</b> 70% of students score more than or equal to 18 marks out of the 30 marks
<b>Attainment Level 3:</b> 80% of students score more than or equal to 18 marks out of the 30 marks
2. Final Examination- 70% Weightage to Final Examination
<ul style="list-style-type: none"> <li>60% of students score more than or equal to 45% marks out of the relevant marks</li> <li>70% of students score more than or equal to 45% marks out of the relevant marks</li> <li>80% of students score more than or equal to 45% marks out of the relevant marks</li> </ul>
<b>Attainment Level 1:</b> 60% of students score more than or equal to 27 marks out of the 60 marks
<b>Attainment Level 2:</b> 70% of students score more than or equal to 27 marks out of the 60 marks
<b>Attainment Level 3:</b> 80% of students score more than or equal to 27 marks out of the 60 marks
<b>NOT ATTAINED: &lt;60%</b>
3. Assignment
<ul style="list-style-type: none"> <li>60% of students score more than or equal to 60% marks out of the relevant marks</li> <li>70% of students score more than or equal to 60% marks out of the relevant marks</li> <li>80% of students score more than or equal to 60% marks out of the relevant marks</li> </ul>
<b>Attainment Level 1:</b> 60% of students score more than or equal to 06 marks out of the 10 marks
<b>Attainment Level 2:</b> 70% of students score more than or equal to 06 marks out of the 10 marks
<b>Attainment Level 3:</b> 80% of students score more than or equal to 06 marks out of the 10 marks

8.4.2 Record the attainment of Course Outcomes of all first year courses (5)

Institute Marks : 4.00

The CO attainment through all the first year courses for the year 2016-17.

Index	Course	CO-1	CO-2	CO-3	CO-4	CO-5
C101	15MAT11	66.46	72.66	56.31	60.37	
C102	15PHY12	68.2	69.3	69.84	56.21	
C103	15CIV13	58.662	60.266	58.92	58.576	
C104	15EME14	75.064	66.426	55.76	73.434	63.7
C105	15ELE15	75.374	82.568	72.47	63.318	
C106	15WSL16	64.4975	72.6325	64.8825	72.34	
C107	15PHYL17	80.1	80.14	79.29	79.23	

C108	15CPH18	52.01	53.154	58.238	58.786
C110	15MAT11	65.66	77.87	47.36	56.35
C111	15CHE12	67.258	66.738	68.24	67.716
C112	15PCD13	62.262	64.076	62.53	59.992
C113	15CED14	87.23	87.23	87.23	87.23
C114	15ELN15	62.472	63.186	62.152	63.54
C115	15CPL16	79.33	82.51	82.93	81.58
C116	15CHEL17	81.682	81.682		
C117	15CIV18	95.014	96.54	95.41	95.686
C119	15MAT21	51.31	44.61	44.08	41.47
C120	15PHY22	69.22	69.79	69.84	69.64
C121	15CIV23	58.24	61.466	58.73	58.68
C122	15EME24	64.524	65.26	54.288	69.718
C123	15ELE25	79.08	81.008	73.966	62.106
C124	15WSL26	63.3125	68.3225	59.895	70.1
C125	15PHYL27	77.04	76.8	77.41	77.42
C126	15CPH28	51.55	52.70	55.18	56.39
C128	15MAT21	55.96	43.96	44.35	42.31
C129	15CHE22	65.63	65.99	66.61	65.99
C130	15PCD23	57.462	59.374	58.848	54.304
C131	15CED24	83.79	83.83	83.95	83.858
C132	15ELN25	68.132	68.154	69.002	69.29
C133	15CPL26	78.244	81.378	81.378	80.48
C134	15CHEL27	79.89	79.89		
C135	15CIV28	95.342	95.522	94.356	95.738

67.767

**CO attainment through all the first year courses for the year 2017-18**

Index	Course	CO-1	CO-2	CO-3	CO-4	CO-5
C101	17MAT11	65.15	72.65	52.44	57.67	
C102	17PHY12	66.04	66.56	66.74	66.16	
C103	17CIV13	57.115	61.948	54.255	56.19	
C104	17EME14	66.1	66.28	57.99	73.27	67.615
C105	17ELE15	90.668	81.343	75.923	62.133	
C106	17WSL16	58.45	67.3	59.35	64.95	
C107	17PHYL17	72.46	73.08	71.24	73.71	
C109	17MAT11	57.82	69.62	35.43	45.34	
C110	17CHE12	55.18	56.685	56.578	56.218	
C111	17PCD13	62.453	65.253	65.333	52.518	
C112	17CED14	84.2675	84.2975	84.375	84.3275	
C113	17ELN15	53.3	54.115	52.965	52.2	
C114	17CPL16	80.575	82.95	76.65	82.25	
C115	17CHEL17	79.963	79.963			
C116	17CIV18	95.323	97.198	97.193	95.04	
C117	17 MAT 21	71.58	65.27	64.5	65.84	
C118	17 PHY 22	61.76	62.26	63.12	62.54	
C119	17 CIV 23	57.615	58.198	56.005	59.133	
C120	17 EME 24	60.43	63.475	54.495	64.485	63.945
C121	17ELE25	78.21	67.41	70.77	53.99	
C122	17 WSL 26	65.7	75.04	66.085	73.875	
C123	17 PHYL 27	71.48	71.39	65.76	71.35	
C125	17 MAT 21	56.7	44.96	44.38	45.85	
C126	17 CHE 22	65.14	64.99	65.55	64.31	
C127	17 PCD 23	48.32	50.365	49.915	45.863	
C128	17 CED 24	81.5933	81.6266	81.6933	81.7266	
C129	17 ELN 25	60.18	59.71	58.515	59.57	
C130	17 CPL 26	83.5	77.338	77.338	77.338	

C131	17 CHEL 27	77.37	77.37		
C132	17 CIV 28	93.688	94.063	94.633	92.718

CO attainment through all the first year courses for the year 2018-19

Index	Course	CO-1	CO-2	CO-3	CO-4	CO-5
C101	18MAT12	55.31	55.91	57.84	58.51	59.7
C102	18PHY12	41.37	40.24	37.42	39.7	
C103	18ELE14	43.16	54.4	46.8	37.95	
C104	18CIV15	55.67	57.98	58.25	58.97	
C105	18EGDL16	78.3966	78.37	78.21	78.3233	
C106	18PHYL16	79.09	78.86	78.6	78.63	
C107	18ELEL17	66.49	66.92	85.71	81.71	
C108	18EGH18	54.06	54.88	53.88	55.30	53.78
C109	18MAT11	56.92	57.79	57.71	60.20	60.00
C110	18CHE12	64.65	65.51	63.67	65.14	
C111	18CPS13	54.56	56.31	50.92	49.95	
C112	18ELN14	49.72	51.02	40.53	48.56	
C113	18ME15	67.4825	68.66	58.16	71.4075	65.595
C114	18CHEL16	81.66	81.63	67.46	80.45	
C115	18CPL17	77.05	69.37	69.37	69.37	
C116	18EGH18	53.59	54.17	53.68	54.79	54.80
C117	18MAT21	59.44	57.95	60.11	61.11	60.20
C118	18PHY22	61.95	60.6	60.82	60.25	
C119	18ELE23	44.068	55.016	47.506	39.182	
C120	18CIV24	52.38	52.7	53.67	54	
C121	18EGDL25	81.482	81.512	81.59	81.562	
C122	18PHYL26	74.82	77.57	78.07	78.63	
C123	18ELEL27	67.098	67.014	85.666	81.434	
C124	18EGH28	52.12	54.35	53.75	54.01	53.71
C125	18MAT22	66.44	67.76	65.82	66.7	66.12
C126	18CHE23	56.96	58.04	56.68	57.51	
C127	18CPS24	49.24	51.46	46.34	47.1	
C128	18ELN25	39.25	39.74	31.85	37.7	
C129	18ME25	54.328	54.436	51.366	60.178	54.668
C130	18CHEL27	78.83	78.82	66.21	78.83	
C131	18CPL28	79.28	71.34	71.34	71.34	
C132	18EGH28	51.64	54.33	54.57	54.88	54.686

8.5 Attainment of Program Outcomes from first year courses (20)

Total Marks 18.00

8.5.1 Indicate results of evaluation of each relevant PO and/ or PSO, if applicable (15)

Institute Marks : 14.00

POs Attainment:

Course	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
C101	1.67	1.67	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
C102	1.51	1.04	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
C103	1.26	1.53	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
C104	1.60	1.60	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
C105	2.467	2.001	PO3	PO4	2.677	PO6	PO7	PO8	PO9	PO10	PO11	PO12
C106	1.77	2.68	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
C107	2.46	2.46	PO3	PO4	PO5	PO6	PO7	PO8	1.96	1.96	PO11	PO12
C108	PO1	PO2	PO3	PO4	1.87	PO6	PO7	PO8	PO9	1.77	PO11	1.77
C109	1.76	1.76	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
C110	2.31	1.57	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
C111	1.91	1.43	1.43	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
C112	1.65	1.20	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
C113	2.7	1.8	1.84	0.9	1.8	PO6	0.94	PO8	PO9	PO10	PO11	2.7
C114	2.12	2.51	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
C115	2.08	2.16	2.16	2.08	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
C116	PO1	PO2	PO3	PO4	1.81	PO6	PO7	PO8	PO9	1.83	PO11	1.75
C117	1.86	1.86	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
C118	2.06	1.59	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
C119	1.40	1.60	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
C120	1.57	1.57	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
C121	2.554	2.119	PO3	PO4	2.752	PO6	PO7	PO8	PO9	PO10	PO11	PO12
C122	1.86	2.78	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
C123	2.47	2.47	PO3	PO4	PO5	PO6	PO7	PO8	1.92	1.96	PO11	PO12
C124	PO1	PO2	PO3	PO4	1.87	PO6	PO7	PO8	PO9	1.83	PO11	1.80
C125	2	2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
C126	2.05	1.39	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
C127	1.75	1.31	1.31	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
C128	1.29	0.94	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
C129	2.23	1.49	1.49	0.76	1.47	PO6	0.76	PO8	PO9	PO10	PO11	2.23
C130	2.08	2.46	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
C131	2.14	2.22	2.22	2.14	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
C132	PO1	PO2	PO3	PO4	1.76	PO6	PO7	PO8	PO9	1.82	PO11	1.83
PO Attainment	1.95	1.83	1.74	1.47	2.00	0	0.85	0	1.94	1.86	0	2.01

**PO Attainment Level**

Course	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
Direct Attainment	1.95	1.83	1.74	1.47	2.00	0	0.85	0	1.94	1.86	0	2.01

**PSOs Attainment:**

Course	PSO1	PSO2
	PSO1	PSO2

**POs Attainment Levels and Actions for Improvement- (2018-19)**

POs	Target Level	Attainment Level	Observations
<b>PO 1 : Engineering Knowledge</b>			
PO 1	2.2	1.95	Improved Compared to last Year
Action 1. Guest lectures. Action 2: Fundamental concepts were discussed in classroom periodically.			
<b>PO 2 : Problem Analysis</b>			
PO 2	2.2	1.83	Scope for improvement. Ability to identify, formulate and analyze the problems can be enhanced.
Action 1. Guest lectures.			
<b>PO 3 : Design/development of Solutions</b>			
PO 3	2.2	1.74	Scope for improvement. Design skills can be improved.
Action 1. Lab demonstrations/video presentations to design and develop solutions for problems to be arranged. Action 2. Collaborative learning by group activity, arrange activity to solve different problems to different groups and share the answers			
<b>PO 4 : Conduct Investigations of Complex Problems</b>			
PO 4	1.6	1.472	Scope for improvement. Guest lectures
Action 1. Guest lectures.			
<b>PO 5 : Modern Tool Usage</b>			
PO 5	2.2	2.00	Lack of knowledge in application of modern tools.
Action 1. Guest lectures. Action 2. Laboratory			
<b>PO 6 : The Engineer and Society</b>			
PO 6	1	0	Scope for improvement.
Action 1. Discussion on environment and sustainability concepts by different fields of engineering			
<b>PO 7 : Environment and Sustainability</b>			
PO 7	1	0.85	Scope for improvement. Awareness on sustainable environment.
Action 1. Discussion on environment and sustainability concepts by different fields of engineering			
<b>PO 8 : Ethics</b>			
PO 8	1	0	needs to improve
Action taken 1: Need scope on ethics			
<b>PO 9 : Individual and Team Work</b>			
PO 9	2	1.94	Scope for improvement. Group activities can be arranged
Action 1. Encouraging students as volunteers in technical and cultural fests Action 2. Encouraging students to participate in sports events Action 3. Group assignments.			
<b>PO 10 : Communication</b>			
PO 10	2.2	1.86	Scope for improvement. Presentation and communication skills can be improved.
Action 1. English course as an extra learning is arranged Action 2: Ability to participate in group activity and communicate effectively.			
<b>PO 11 : Project Management and Finance</b>			
PO 11	1	0	Scope for improvement.
Action taken 1: Need scope on project Management and finance			
<b>PO 12 : Life-long Learning</b>			
PO 12	2.2	2.01	Scope for improvement. Ability to participate in group activity and communicate effectively.
Action 1. Encouraging students to participate in various co-curricular activities. Action 2. Orientation programme on interdisciplinary applications in engineering.			

**POs Attainment Levels and Actions for Improvement- (2017-18)**



POs	Target Level	Attainment Level	Observations
<b>PO 1 : Engineering Knowledge</b>			
PO 1	2.2	2.05	Needs Improvement
Action1: Basic knowledge in all relevant subjects were refreshed during classroom teaching in order to update themselves and refreshed in subjects. Action 2 : Fundamental concepts were discussed in classroom periodically.			
<b>PO 2 : Problem Analysis</b>			
PO 2	2.2	1.89	Needs Improvement
Action 1: suggestions will be given to students to refer research article available in library.			
<b>PO 3 : Design/development of Solutions</b>			
PO 3	2.2	1.90	Needs Improvement
Action 1: Students will be encouraged to participate various model exhibitions organized by other institutes.			
<b>PO 4 : Conduct Investigations of Complex Problems</b>			
PO 4	1.62	1.52	Needs Improvement
*Action1 : Science model exhibition and poster exhibition conducted for first year students to develop their investigation skills.			
<b>PO 5 : Modern Tool Usage</b>			
PO 5	2.4	2.15	Needs Improvement
Action 1: organised orientation program on training & placement Action2: Students will be advised to utilize digital library to know more about latest tools.			
<b>PO 6 : The Engineer and Society</b>			
PO 6	1	0	Needs Improvement
Action 1:Need scope on Engineering and society			
<b>PO 7 : Environment and Sustainability</b>			
PO 7	1.5	1.31	Needs Improvement
Action 1: Social awareness like green campus initiated and encouraged to participate in workshops conducted in various institutes			
<b>PO 8 : Ethics</b>			
PO 8	2	1.76	Needs Improvement
Action 1: Augmented course like Constitution and professional ethics, and human rights in the curriculum by University.			
<b>PO 9 : Individual and Team Work</b>			
PO 9	1	0	Needs Improvement
Action 1: Project teams are required by design to follow team work principles and the evaluation model necessitates each member to contribute in all aspects, Additionally teachers encourage students to participate in project exhibition.			
<b>PO 10 : Communication</b>			
PO 10	1	0	Needs Improvement
Action 1: classroom seminars in prior given topics were assigned and students were motivated to speak out fluently.			
<b>PO 11 : Project Management and Finance</b>			
PO 11	1	0	Needs Improvement
*Action 1: Project exhibition to be conducted by physics & chemistry department"			
<b>PO 12 : Life-long Learning</b>			
PO 12	2.2	1.98	Improved Compared to last Year
Action 1: Students are encouraged towards Research and Innovation.			

#### POs Attainment Levels and Actions for Improvement- (2016-17)

POs	Target Level	Attainment Level	Observations
<b>PO 1 : Engineering Knowledge</b>			
PO 1	2.2	2.04	Needs Improvement
Action 1: Basic knowledge in all relevant subjects were refreshed during classroom teaching in order to update themselves and refreshed in subjects. Action 2: Fundamental concepts were discussed in classroom periodically.			
<b>PO 2 : Problem Analysis</b>			
PO 2	2.2	1.93	Needs Improvement
Action 1: Students are given additional problems in the form of assignments and CLASS TEST Action 2: one day talk on Teaching strategies in Mathematics.			
<b>PO 3 : Design/development of Solutions</b>			
PO 3	2.2	1.84	Needs Improvement
Action 1: Planning to Organize national science day.			
<b>PO 4 : Conduct Investigations of Complex Problems</b>			
PO 4	1	0.78	Needs Improvement
Action 1: Students are encouraged to present/publish papers based on literature review and their own projects.			
<b>PO 5 : Modern Tool Usage</b>			
PO 5	2.5	2.33	Needs Improvement
Action 1: Students will be advised to utilize digital library to know more about latest tools.			
<b>PO 6 : The Engineer and Society</b>			
PO 6	1.8	1.40	Needs Improvement
Action 1: Students motivated to participate many social awareness program like "Swatch Bharath Internship camps and NSS Camps etc.			
<b>PO 7 : Environment and Sustainability</b>			
PO 7	1.68	1.31	Needs Improvement
Action 1: Social awareness like green campus initiated and encouraged to participate in workshops conducted in various institutes.			
<b>PO 8 : Ethics</b>			
PO 8	2.8	2.11	Needs Improvement
Action 1: Augmented Courses like Constitution and Professional ethics and human rights is included in the university curriculum.			
<b>PO 9 : Individual and Team Work</b>			
PO 9	3	2.835	Needs Improvement
Action 1: Advice the students to develop the mini projects as team and demonstrate the mini projects in intra/inter college technical events.			
<b>PO 10 : Communication</b>			
PO 10	3	2.835	Needs Improvement
Action 1: Language lab will be conducted from which periodical communication skill development sessions were organized. Action 2: Students will be motivated by their mentors during mentoring to participate in intra/inter college technical events/symposiums.			
<b>PO 11 : Project Management and Finance</b>			
PO 11	1	0	Needs Improvement
Action 1: Suggested the students to participate in national level technical workshops, conferences and symposiums to enhance their knowledge in recent trends and technology.			
<b>PO 12 : Life-long Learning</b>			
PO 12	2.2	1.91	Needs Improvement
Action 1: Planning to organize Induction program for first year students. Action 2: Planning to organize industrial expert talk to create awareness.			

**PSOs Attainment Levels and Actions for Improvement- (2018-19)**

PSOs	Target Level	Attainment Level	Observations
<b>PSO 1 : Graduates are able to Design, Analyze and Develop Mechanical Systems</b>			
PSO 1	1	0	Nil
Action 1:University curriculum does not satisfy/meets PSO 1			
<b>PSO 2 : Graduates are Capable of Developing Research Skills in Self Sustainable Energy sources and Composite Materials.</b>			
PSO 2	1.21	0.995	80% Target Achieved
Action 1: Graduates are being demonstrated knowledge of renewable energy sources and composite material prepared samples			

#### PSOs Attainment Levels and Actions for Improvement- (2017-18)

PSOs	Target Level	Attainment Level	Observations
<b>PSO 1 : Graduates are able to Design, Analyze and Develop Mechanical Systems</b>			
PSO 1	1	0	Nil
Action 1:University curriculum does not satisfy/meets PSO 1			
<b>PSO 2 : Graduates are Capable of Developing Research Skills in Self Sustainable Energy sources and Composite Materials.</b>			
PSO 2	1.01	0.972	97.2% Target Achieved
Action 1: Graduates are being demonstrated knowledge of renewable energy sources and composite material prepared samples			

#### PSOs Attainment Levels and Actions for Improvement- (2016-17)

PSOs	Target Level	Attainment Level	Observations
<b>PSO 1 : Graduates are able to Design, Analyze and Develop Mechanical Systems</b>			
PSO 1	1	0	Nil
Action 1:University curriculum does not satisfy/meets PSO 1			
<b>PSO 2 : Graduates are Capable of Developing Research Skills in Self Sustainable Energy sources and Composite Materials.</b>			
PSO 2	1.205	0.964	96.4% Target Achieved
Action 1: Graduates are being demonstrated knowledge of renewable energy sources and composite material prepared samples			

9 STUDENT SUPPORT SYSTEMS (50)

Total Marks 50.00

9.1 Mentoring system to help at individual level (5)

Total Marks 5.00

Institute Marks : 5.00

The Institute is working towards enhancing the institutional culture to better serve the needs of an ever-changing and dynamic learning community. Effective mentoring begins with the faculty. When it comes to academic success and persistence, there is no substitute for a healthy relationship between faculty and students. Mentoring and Guidance provides

- Encouraging students to discuss their ideas.
- Encouraging students to try new techniques and expand their skills.

Each faculty is assigned 15 to 20 students. The faculty monitors their progress and reports to department in-charge of counseling cell. This mentoring is for over-all development of the student. A counseling sheet is maintained by faculty, where attendance, examination marks and family details are recorded. The same is continued till the student completes his/her graduation. The periodic status will be submitted to the parents/Guardians.

**Type of Mentoring: Professional Guidance/Career advancement/Course work specific /Lab specific/Total development (Mentoring covers all types of guidance)**

No. of students per mentor: Between 15 to 20.

External Mentoring: 1. Professional Guidance

2. Career Guidance

**Non-Academic Mentoring (External Mentoring)**

**Table 9.1: Non-Academic Mentoring**

Sl.No	Type of Mentoring	Frequency of Meeting	Procedure Followed
1	Professional Guidance	Every 6 months	Seminars/training/mock tests/professional guidance
2	Career Advancement	Every 6 months	Conducting group discussions, debates, quiz, online tests, etc

**Academic Mentoring (Internal mentoring)**

The Institute is working towards enhancing the institutional culture to serve better, the needs of an ever-changing and dynamic learning community.

Mentoring and Guidance provides encouragement to the students as under:

- Encouraging students to discuss their ideas.
- Encouraging students to try new techniques and expand their skills.
- Reassure students of their skills and abilities to succeed.
- Teach students how to break large tasks into smaller, more manageable ones to avoid becoming overwhelmed.

Mentoring gives the extraordinary opportunity to facilitate a students personal and professional growth by sharing the knowledge what they learn through years of experience. Mentoring will also gives to the students an "inside look" at career options and guide them on skills that will improve their success.

**Mentoring Activities**

1. The interaction meeting will be conducted for departmental fresher's / new comers.
2. Mentor – Mentee meetings will be conducted periodically.
3. Mentoring also includes, encouraging students to participate in multi-faceted activities (group discussions, quiz, debate and other co curricular, extracurricular and sports activities).
4. Counselling will be done for those students having poor academic performance, as reported by the concerned class Co-ordinators / mentors in presence of their parents /guardians. Mentoring report shall be submitted monthly mentoring co-ordinators and the same will be submitted to parent cell co-ordinator.

**POLICY MECHANISM OF MENTORING SYSTEM**

**Table 9.2: Policy Mechanism of Mentoring System**

1	Mentors	Teaching faculty act as Mentor
2	No. of students per mentor	15 to 20
3	Frequency of meeting	Meeting conducted every month after internal assessment.
4	Parents feedback	The Parents feedback is collected after every meet by respective mentors
5	Analysis	The feedback analysis will be referred by the HOD's for corrective measures, through Head of the Institution

**9.2 Feedback analysis and reward /corrective measures taken, if any (10)**

Total Marks 10.00

The feedback collection process is very important for improvement of the Institution. The faculty feedback is collected from the students every semester. This process contributes to evaluate the faculty performance for reward / corrective measures. The online feedback will be taken from the students in regular class hours and monitored by the inter department faculty.

**Average Percentage of Students who participate:** Students having attendance more than 75% are participated.

**The feedback analysis process:**

The inter department faculty collect the feedback from students online and consolidated Report generated online is forwarded to the Principals Office for further Corrective measures. The same will be sent to respective HOD's.

Grading	Points
Excellent	9.01 - 10
Good	7.01 - 9.0
Average	4.01 - 7.00
Below Average	1.00 – 4.00

The teaching performance indices are analyzed by the Principals office and the same is conveyed to the concerned.

**Basis of reward / corrective measures:**

The indices used for measuring the quality of teaching, learning and summary of the index

values are mentioned below

1. Arising curiosity in the subject by linking to practical or real time applications.
2. Attitude/professionalism towards students.
3. Availability of the staff in the campus to clarify the doubts.
4. Communication skills and subject knowledge.
5. Coverage of syllabus and regularity in conducting classes.
6. Effective planning and organization of lecture contents.
7. Fairness in evaluation of IA books and assignments.
8. Guidelines for external theory examination/practice and revision of important topics.
9. Presentation of subject matter or method to teaching.
10. Response to slow learners/could your teacher inspire or make you to work hard for better results.

**System of Reward:**

Best performing faculty is rewarded by issuing a letter of appreciation. Performance rating of faculty through student feedback system is one of the factors in evaluating the annual performance and to release the annual increments.

**Corrective Actions taken:**

The faculties performing below average are trained continuously through Faculty Development Programme to improve the quality of the staff

**9.3 Feedback on facilities (5)**

Total Marks 5.00

Institute Marks : 5.00

Assessment is based on student feedback collection, analysis and corrective action taken.

**Feedback on facilities**

A standard procedure for feedback on facilities is taken up in the college. Feedback is collected from the students on facilities available in the college such as Library facility, Internet facility, Canteen facility, Sports and Gymnastic facility Etc..

The feedback is analyzed and the necessary corrective measures are implemented after discussions with the Management.

**Following is the process of feedback on facilities.**

- i) Feedback collection process
- ii) Feedback analysis
- iii) Corrective measures

**i) Feedback collection process:**

**Table 9.3.1:** Details of feedback collection process

Items	Description
Feedback collected on all facilities provided by the college.	YES
Feedback collection process	Computerized
Feedback receiver	Administrative officer / Admin manager / Academic Dean
Frequency of feedback collection	Once in a semester
Metrics used for calculation	9 to10 --- Excellent

	7 to 8.9 --- Good
	4 to 6.9 --- Average
	1-3.9 --- Weak
Purpose of comments	For improving the quality of facilities.

#### FORMAT of Student Feedback on Facility

##### Questionnaires:

1. How do you rate the Internet facility at Internet Centre?
2. How do you rate House Keeping at College Campus?
3. How do you rate Drinking Water Facility?
4. How do you rate Washroom facilities and maintenance?
5. How do you rate Sports Activities?
6. How do you rate Mentor-Mentee System?
7. Are you happy with the food served in the present canteen?
8. Are you aware of the NSS Activities in our University?
9. Interaction with the Principal.
10. Interaction with HODs.
11. How is the responsiveness of Reception?
12. Is there a Good support/interaction from Office?
13. Availability of Staff in working Hours.
14. Extra Curricular Activities.
15. Discipline in Campus.

##### Rating of Scale

9 to 10 --- Excellent

7 to 8.9 --- Good

4 to 6.9 --- Average

1-3.9 --- Weak

##### ii) Feedback analysis:

The feedback given by the students is consolidated and analyzed. Principal will discuss about the consolidated report with the management and come out with necessary actions.

##### iii) Corrective measures:

Corrective measures will be implemented at the college level with respect to the decision made by the management.

Some of the corrective measures taken are:

- Internet facility has been provided at hostel.
- Library has been computerised.

#### 9.4 Self-Learning (5)

Total Marks 5.00  
Institute Marks : 5.00

Self-learning helps the students to develop sense of responsibility that equips with the essential attributes required for their career. Self learning helps the students in gaining the knowledge and applying to larger domains. Self learning helps better understanding of the discipline.

Facilities, Materials and Scope for self learning

- E-learning
- Technical Talks
- Workshops
- Webinars
- Industrial Tour
- internship
- Project Exhibitions
- MOOC certificates

E-learning details:

**Table 9.3: E-learning details**

Sl No	Facilities	Information Resources
1	Digital Library	Notes, Question Papers, Manual Solutions etc
2	VTU Edusat	CD's available for all the subjects
3	Language Lab	Communication skills, vocabulary, phonetics etc.
4	NPTEL online courses	Available Online
5	IIT Bombay -X	FDP101X ,SKANI 101X ,FDP 201 X, ET611TX , CS101.1X ,ET702X-MOOC ,SKVIZ101X .
6	TEACHING SKILLS	Available Online
7	Professional activities	Available Online
8	Soft skills	Available Online
9	Work place communication	Available Online
10	English for oral communication	Available Online
11	Financial literacy	Available Online
12	Handling large project	Available Online
13	NITTTR	Available Online
14	WEBINAR	Available Onlin
15	E-SHIKSHANA	Available Online

**MOOC:**

A massive open online course is an online course aimed at unlimited participation and open access via web. In addition to traditional course materials such as filmed lectures, readings and problem sets, many MOOCs provide interactive user forums to support community interactions between students, professors and teaching assistants (TAs). MOOCs are a recent and widely researched development in distance education which was first introduced in 2008 and emerged as a popular mode of learning in 2012.

Learning beyond syllabus and creation of facilities for self-learning is to make the students well-verse in all the directions. The format for this system is as specified below.

**CONTENTS BEYOND SYLLABUS**

RYMEC supports for students to learn the subjects in a broader way so as to inculcate the skills of creativity, applying domain knowledge for practical problems and to improve the quality of self-learning. Contents beyond the syllabus are given to students by respective subject teachers in the form of:

- Case Studies
- Mini Projects
- Assignments

**9.5 Career Guidance, Training, Placement (10)**

Total Marks 10.00

Institute Marks : 10.00

**CAREER GUIDANCE**

**Career guidance for engineering students** is a must so that graduates can discover their strengths and weaknesses before venturing out into the highly competitive world, some Precautionary as well as career-boosting measures need to be taken by graduates. The Students are guided by mentors and also career guidance program is conducted by companies like

- i) **Qtpi Robotics,**
- ii) **Elements 14,**
- iii) **TCS.**

iii) Career Development workshop is conducted by the Resource Persons Mr. Prashanth Rao Social Entrepreneur. (President Sudiksha Charitable Trust), Mr. H. C. Ravi Shankar Deputy General Manager Quick Silver Pvt Ltd. Mr. Madhu Kumar Orientation Program on Software engineer Tarsha systems.

iv)TCS Bangalore team conducted career guidance program on **Industry 4.0 and Employability Skills.**

v) technical session conducted on "**Scope of Data Analytics**".

vi)International Student Exchange Program (Young Ambassador Program) on "**Design Thinking Workshop**" the students from Denmark, United Kingdom (U K), Iceland,germany,Belgium,Austria and Netherlands

SL.NO	ORIENTATION PROGRAM	RESOURCE PERSON/COMPANY
1.	Career opportunity for BE students in Japanese companies	Silver pack Globle, Bangalore
2.	Seminar on Study abroad	VideshConsultz, Bangalore
3.	Seminar on " Role of BE/MBA Students in Banking and insurance sector	Bret Solutions Pvt Ltd, Bangalore
4.	Technical talk on Cryptography and IT Employability	TCS, Bangalore
5.	Orientation Program on abroad Studies	Manya Institute, Bangalore
6.	Orientation Program on GATE examination	ACE Engineering Academy, Hydrabad
7.	Orientation Program on	Qspiders, Bangalore

#### TRAINING AND PLACEMENT CELL

Campus training and placements play a major role in shaping up the career goals of students. To cater this, an independent Training and Placement Cell is in function in the institute since 2001. The Training and Placement Cell is headed by Concerned Officers and supported by Departmental co-ordinators. The vision of the training and placement cell is "**Transforming every student – an employers choice**". Our mission is "Develop the students to face global competitive world with confidence and attain desired placement". Our industry partners are TCS, JSW. Our Trusted recruiters are TCS, HCL, Emphasis, IGATE, Cigital, SLK Software Services, Advanced electronics Ltd, Global Edge, Tech Mahindra, L&T, Accenture, Mind Tree, JSW, Kirloskarand many more.

#### Pre Placement Training:

During campus placements, recruiters test for an array of skill sets in their potential employees. In addition to being knowledgeable in their core subjects, students should also possess a great aptitude and soft skills. Hence pre placement training is necessary. The Pre placement training has been conducted by **Universal Education Bangalore, Bizotic, Bangalore GTT, Pune and Ethnus, Bangalore** the contents of Pre Placement training are mention as below.

#### CONTENTS OF PRE-PLACEMENT TRAINING

##### Quantitative aptitude

- Basic math
- HCF,LCM and simple and compound interest
- Data sufficiency 1
- Data sufficiency 2
- Analytical Reasoning
- Logical Reasoning 2
- Progression
- Permutation and Combination
- Ratios and Proportion
- Averages and Blood Relations
- Percentages, Profit and loss
- Speed, time and distance
- Time and Work
- Logical Reasoning 1
- Data Interpretation 1
- Data Interpretation 2

##### Verbal aptitude

- Parts of speech & Vocabulary Building
- Synonyms, Antonyms
- Analogies
- Sentence Completion Sentence Correction & Incorrect sentence
- Reading comprehension 1
- Reading comprehension 2
- Error detection

##### Soft skills



- Group discussion
- Personal interviews
- Resume building
- Grooming

#### 9.6 Entrepreneurship Cell (5)

Total Marks 5.00

Institute Marks : 5.00

EDC is headed by Dr.H.GIRISHA, Professor- Department of Computer Science and Engineering with a team of faculty coordinators from other departments of the college.

The goal of EDC is to assist students, entrepreneurs, including Institutes' faculty, with pre-venture, start-up or existing business with financial management, marketing, technology and product development, commercialization issues, to understand the employability options, opportunities to control unemployment and to create better opportunities for youngsters.

Working in collaboration with New Age Incubation Network (NAIN) Government of Karnataka and District Industry Centre – DIC, BALLARI and MSME-Incubation Centre – New Delhi. EDC has conducted various activities for the college students creating and promoting entrepreneurship awareness in the campus.

##### Recent activities carried out at college premises.

1. VTU TEQIP 1.3 Sponsored (STTP) 3 day short term training program for students Program on Employability & Entrepreneurial Skills On 6th - 8th September 2019 In Association with Visvesvaraya Technological University Belagavi, Karnataka Aryabhata Knowledge University Patna, Bihar Biju Patnaik University of Technology Rourkela, Orissa
2. BOOT CAMP in association with K-Tech and Department of IT-BT, Government of Karnataka on 29th August 2019. Many students presented their ideas during above said activities.

#### 9.7 Co-curricular and Extra-curricular Activities (10)

Total Marks 10.00

Institute Marks : 10.00

##### Co-curricular Activities

##### IRONICA 2K18 kalburgi zonal techno-cultural fest.

Mech- tantrika has successfully organized Kalburgi zonal techno-cultural fest IRONICA 2K18 on November 14<sup>th</sup>, 15<sup>th</sup> and 16<sup>th</sup> of 2018. Inauguration of the fest was done in the presence of honorable chairman, principal, vice principal, all HODs, staff and students of RYMEC. Various Colleges from Kalburgi zone have participated in various events.



Techno cultural fest was conducted in three categories namely:

Day 1 technical events such as: paper presentation, poster presentation, project presentation etc, Day 2 sports events such as: mini cricket, tiger five football, treasure hunt, PubG, volley ball etc, Day 3 Cultural events such as singing, dancing, skit etc and followed by DJ Night for the current students of RYMEC.

##### INDUSTRIAL TOUR

Mech- Tantrika has successfully arranged 3 days industrial visit on October 24<sup>th</sup>, 25<sup>th</sup> and 26<sup>th</sup> of 2019 for final year students which concentrated on exposing the students towards the on-going technology, finally bridging the gap between academics and industry.

Industrial tour was scheduled to visit the following places:

1. Varahi underground power plant, Udupi District, Karnataka.
2. Sharavathi power plant
3. Linganamakhi power plant, Sagara Taluk, Karnataka.



**VIDHARA-TECH FEST** conducted annually by CSE-FORUM by CSE staff and students, for all the basic degree students and technical degree students. The various events conducted are both technical like debugging, coding, quiz etc and nontechnical event alike dancing, singing, video games, movie making etc.



CSE-FORUM also has many other activities to improve the students all round personality development skills apart from prescribed syllabus. They are mentoring activities on technical skills.

Improving memory skills and how to face the exams through blended learning techniques.

- Python programming skills
- How to mentally strong/Real-life ethical values through videos.
- Career development through workshops
- Soft skill programmes in the class rooms

i. The department of ECE having forum named has TALENTRONICS and objectives are:

- To encourage students to build their academic skills by organizing events such as paper presentation, quiz, circuit rigup.
- To encourage students to build their extra-curricular activities by organizing events such as pencil sketch, cooking without fire, cultural programs, sports events such as basket ball, cricket.
- To build leadership skills & make them work in a group by involving students as volunteers to organize the events.



iii) Dept of Mechanical facilitate a techno cultural democracy for the students the department has inaugurated students forum with the title "MECH-TANTRIKA"

iv) Department of EEE having forum named has "VIDYUTSAV" under this forum , the events like Technical Talk, photo hunt, Brainstorming Activities were conducted. also Competitions like Logo Design, Rangoli and Skits were organized

#### i) NSS-UNIT RYMEC

NSS UNIT of RYMEC is headed by Prof. S. Kotresh of EEE dept. NSS UNIT of our college is functioning from many years and organizing several useful programs for the society. The programs like

- Voluntary Blood donation camps- around **1061 units of blood** were collected during last 3 camps organized.
- Tree plantation
- Health education & Health orientation programs
- Essay writing- Drawing competitions
- Free medical and Health check up camps,
- Helping towards flood affected people etc.

#### Objective of NSS

- Creating awareness of social service for the students
- Motivating the students to serve for society in tree plantation, blood donation etc.,
- Not only education also promoting the students towards moral ethics, healthy and sound thinking about society.
- Helping for the poor and disabled people by organizing health orientation programs.
  - Outcome of the programs:
  - From our NSS UNIT many patients, poor and disabled people were benefited.

#### AICTE SPONSORED WORK SHOP On Sansad Adarsh Grama Yojana

Dr.K Veeresh, Principal, RYMEC and Dr.Kotresh,S & Prashanth Keni of NSS UNIT, RYMEC participated in AICTE sponsored workshop on SANSAD ADARSH GRAMA YOJANA (SAGY) at Nagarjuna College of Engineering & Technology, Bengaluru on 25<sup>th</sup> & 26<sup>th</sup> of November-2017.



#### SAANSAD ADARSH GRAM YOJANA

M.P. Constituency: Ballari

Member of Parliament: Sri B. Sriramulu (during 2017)

Village : Tambrahalli: Taluk: H.B. Halli.

NSS UNIT: Rao Bahadur Y.Mahabaleswarappa Engineering College

Brief Report:

We the NSS Unit of RYMEC visited the Tambrahalli village (120KM from Ballari) which was declared as Saansad Adarsh Gram Yojana from the honorable Member of Parliament Sri B.Sriramulu. In this visit, we collected the information related to this program from the villagers and we organized some orientation programs Viz., Solar energy awareness, water conservation, Rain water harvesting, Global warming awareness to the people. The programs were organized in Kinnal porammambe Gurusiddappa high school, Thambrahalli village.



## ii) SPORTS -UNIT RYMEC

Sports unit of RYMEC is headed by Mr.Vijaya Mahantesh Physical director of our college, college sports unit is functioning from many years and organizing several competitions like Athletic meet, various sports-games for MANDARA (college day celebrations) and encouraging the students to participate in the university / national / international level competitions. Prizes/awards will be distributed in MANDARA celebrations.

**Sports unit of RYMEC is having the following facilities:**

1. College sports ground for Athletics
2. Indoor-stadium for shuttle badminton
3. Table tennis
4. Foot ball ground
5. Basket ball court
6. Carom
7. Chess.
8. Throw ball court
9. Volley ball court

### List of Students participated in National and International Level

Sl.No	Details
01.	<b>Shiva kumar STM</b> MECHANICAL Department Selected for Indian Throw ball team for Indo-Bangladesh International Throw ball Championship held at Chhattisgarh and won the tournament. <b>Shiva kumar STM</b> MECHANICAL Department Selected for Indian Throw ball team for Indo-Thailand International Throw ball series held at Bangkok Thailand JUNE 2017, and won the tournament.
02.	<b>Chandrakala T</b> CSE Department Selected for Indian Throw ball team for Indo-Thailand International Throw ball series held at Bangkok Thailand JUNE 2017, and won the tournament. <b>Chandrakala T</b> CSE Department Selected for Indian Throw ball team for Indo-Sri lanka International Throw ball championship held at Kagalu Srilanka NOV 2017,and won the tournament.
03.	<b>Aruna kumari</b> IPE Department selected for Indian Throw ball team to participate at Indonesia
04.	<b>PRASHANTH KUMAR H</b> MECHANICAL Department Selected for VTU Hockey team Inter University tournament held at Bangalore university. Bangalore, 2018.
05.	<b>LAXMIKANTH N.</b> CIVIL Branch .Selected for VTU Hockey team Inter University tournament held at Bangalore university. Bangalore, 2018.
06.	<b>GIRISH KM .</b> MECHANICAL Department. Selected for VTU KHO-KHO team Inter University tournament held at Mysore University. Mysore 2018.
07	B Balaji ECE Dept has won BRONZE MEDAL in ASIAN LEVEL KARATE CHAMPIONSHIP held at Jaipur, Rajasthan on April 2018 among 48 countries participated and he is been selected for WORLD KARATE CHAMPIONSHIP of 2019 among 40+ countries .

08	<p><b>H Raja</b> has participated in the 1st anniversary Indo-Srilanka kenryukan karate championship -2018 held at saumiya moorthy thondaman auditorium holy trinity science college,HAWA ELIYA,NUWARA ELIYA .on Saturday 15th september 2018 and won first place in the KATA (above 15 years) event.</p>
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**Events organized by RYMEC, Ballari**

- VTU Inter Zone Hockey tournament ,
- VTU Zone volley ball tournament,
- VTU Kalaburagi Zone Hand ball tournament,
- VTU Kalaburagi Zone basket ball for men tournament,
- VTU Inter-Zone basket ball for men tournament,
- VTU Inter -Zone cricket tournament,
- VTU Kalaburagi Zone cricket tournament,
- VTU Kalaburagi Zone KHO-KHO tournament.

**iii) Youth Red Cross – Unit RYMEC**

Youth Red Cross – Unit RYMEC is headed by Prof. A. Sharanabasappa of EEE dept. our college Youth Red Cross – Unit is functioning from last two years.

**About YRC**

Youth represent a substantial part of the membership of Red Cross for its humanitarian commitment. Young volunteers can make a significant contribution to meeting the needs of the most vulnerable people within their local communities through Red Cross youth programme. This has been designed to involve young people as much as possible in the movement and its activities not only as workers and beneficiaries, but as partners in management. The programme focuses on the following areas:

Promote life and health through training and education on safety and primary health care. Encourage community service through training and education. Disseminate the seven fundamental principles of Red Cross and Red Crescent movement through activities that encourage the Red Cross ideals Promote international friendship with activities that cultivate a humanitarian spirit Technical support in the development of youth programmes, fund-raising, identification of material and human resources.

**OBJECTIVES**

1. To serve as an information centre to the college community about any features of the Red Cross
2. To enable the college community to obtain Red Cross services available to students
3. To serve as a focal point to which incoming Red Cross services can be coordinated
4. To serve as an outlet for the College Youth Red Cross volunteer services in the community
5. To provide an atmosphere towards the all round development of its members

**ACTIVITIES OF YRC**

1. **Orphanage Visits**
2. **Blood Donation camp**
3. **Awareness Programmes and seminars**
4. **First Aid Training**

**IV) LEAD activity**

LEAD team of RYMEC is headed by **Prof. JAGADEESH.G.M of CSE dept.** our college LEAD team is functioning from last two years.

**ABOUT LEAD**

The LEaders Accelerating Development (LEAD) Program of Deshpande Foundation, Hubballi, Karnataka fosters innovative and entrepreneurial thinking within college students by exposing them to social issues and by encouraging them to volunteer their time and effort into the community. LEAD ignites their latent talent to come up with creative solutions. LEAD is an incubator where innovation meets implementation, knowledge meets experience, social issues meet solutions and efforts meet impact.

**v) CULTURAL - UNIT RYMEC**

**CULTURAL - UNIT RYMEC** of RYMEC is headed by **Prof. Netravathi of EEE dept. college CULTURAL - UNIT** is functioning from many years and organizing several competitions like : painting, photography, movie making, debate, essay writing, cooking without firing, Rangoli, mehendi, yogasana, best out of waste, cartooning etc. for MANDARA(college day celebrations). Our college is motivating the students to participate in university level cultural competitions. Prizes/awards will be distributed in MANDARA celebrations.

**VI) SVEEP (Systematic Voters Educational and Electoral participation)**

Aims at creating awareness about the moral voting and to ensure that all young voters are actively involved in the AWARENESS ACTIVITY by creating ELC(Electoral club) at the college level.

**10 GOVERNANCE, INSTITUTIONAL SUPPORT AND FINANCIAL RESOURCES (120)**

**Total Marks 120.00**

**10.1 Organization, Governance and Transparency (40)**

**Total Marks 40.00**

**10.1.1 State the Vision and Mission of the Institute (5)**

**Institute Marks : 5.00**

<b>Vision :</b>
To Produce Professionally Excellent, Knowledgeable, Globally Competitive, Socially Responsible Engineers and Entrepreneurs
<b>Mission :</b>
M1: To provide quality education in Engineering and Management. M2: To establish a continuous Industry Institute interaction, Participation and Collaboration to contribute skilled Engineers. M3: To develop human values, social values, entrepreneurship skills and professional ethics among the technocrats. M4: To focus on innovation and development of technologies by engaging in cutting edge research areas.

**10.1.2 Governing body,administrative setup,functions of various bodies,service rules, procedures, recruitment and promotional policies (10)**

Institute Marks : 10.00

**The Governing Body:**

Governance is the key activity that connects between the management, staff, students and the community. The governing body of Institution is a legal structure responsible for the overall functioning of the college. In general, it is responsible for the Quality of service (QoS) the college offers to the student and other local community and society, as well as the college annual budget, health and strategic direction. Institution has a governing body in place wherein the members are drawn from distinguished cross-sections of the society as shown in Table 10.1.

**Table 10.2 List of Administrators**

Sl. No.	Name	Designation	Responsibility
1.	Sri J.S. Basavaraj	Chairman, RYMEC	Administration
2.	Dr. Kuppagal Veeresh	Principal	Administration & Mechanical Research Centre
3.	Dr. Savita Sonoli	Vice-Principal, Professor & HOD,ECE	Academic Work
4.	Dr. T. Hanumantha Reddy	Vice-Principal, Professor & HOD,CSE	Admission Head
5.	Dr. Girisha H	Professor,CSE	Dean Academics.
6.	Dr. B Sreepathi	Professor & HOD Dean Examinations	EMS Coordinator, VTU Examinations, Network Maintenance, Digital Library, Online Placement Test, Consultancy Work for online Test.
7.	Dr. Hiregoudar Yerenagoudaru	Professor & PG Coordinator	NBA-Co-ordinator and Dean R & D at Institute Level,
8.	Dr. C Thotappa	Professor & PG Coordinator	Dept NBA Co-ordinator.
9.	Dr. H.M.Somasekharaiah	Professor & PG Coordinator	Academic Work
10.	Dr. H M Mallikarajuna	Professor & HOD,Civil	Departmental Academic Work, Consultancy Work.
11.	Dr. Kori Nagaraj	Professor & HOD,Mech	Departmental Academic Work
12.	Sri. Shambulingana Gouda	Assistant Professor	Electrical Maintenance
13.	Dr. A Thimmana gouda	Professor, MBA Co-ordinator	Departmental Academic Work
14.	Dr. Phakirappa Jeevargi	Professor & HOD,Maths & 1 <sup>st</sup> Year Coordinator	Departmental Academic Work, Dean (Academic & Student Welfare for first year).
15.	Dr. Hiremath Suresh Babu	Professor & HOD,Chem	Departmental Academic Work
16.	Dr. N M Nagabhushan	Professor & HOD,Phy	Research Coordinator(Physics)& NIRF Coordinator
17.	Dr. Veeragandharaiah Swamy	Professor	IQAC Coordinator
18.	Smt. Rakhee Patil	Associate Professor	Departmental Academic Work
19.	Sri. Gururaj K K	Assistant Professor & Placement Officer	Training & Placement

20.	Dr. S. G. Anuradha	Associate Professor	RYMEC Website Coordinator
21.	Sri. S. Kotresh	Associate Professor	NSS Coordinator
22.	Sri. Sharanabasappa Aladalli	Asst. Professor	Red Cross Co-ordinator
23.	Sri Khaja Mouinuddin	Asst. Professor	AISHE Co-ordinator
24.	Smt. Sridevi S Malipatil	Asst. Professor	Girls Hostel Warden
25.	Sri. K.M. Shiva Prasad	Asst. Professor	Boys Hostel Warden
26.	Smt. Rohini H.M	Asst. Professor	Girls Hostel Warden
27.	Sri. Phanindra Reddy	Asst.Professor	Boys Hostel Warden
28.	Smt. Chinna V Gowdar	Asst. Professor	EDUSAT Co-ordinator
29.	Sri Sridhar Belagi	Asst. Professor	A-View Co-ordinator
30.	Sri Vishwanath Reddy	Librarian	Library

**Functions of Various Bodies:**

Position	Functions
Governing Council	<ul style="list-style-type: none"> <li>◦ Frame directive principles and policies</li> <li>◦ Amend and approve policies from time to time</li> <li>◦ Approve budgets</li> </ul>
Chairman	<ul style="list-style-type: none"> <li>◦ Frame directive principles and policies.</li> <li>◦ Amend and approve policies from time to time</li> <li>◦ To look after the overall development of institute</li> <li>◦ Mobilize external resources to strengthen the institute</li> <li>◦ Plan &amp; provide for necessary facilities / equipment for development.</li> </ul>
Principal	<ul style="list-style-type: none"> <li>◦ Design &amp; define organization structure.</li> <li>◦ Delegates responsibilities of various positions in the organization</li> <li>◦ Ensure periodic monitoring &amp; evaluation of various processes &amp; sub- processes</li> <li>◦ Ensure effective purchase procedure</li> <li>◦ Define quality policy and objectives</li> <li>◦ Conduct periodic meeting of various bodies such as Governing Council, Women's Grievances Redressal Committee etc.</li> <li>◦ Manage accounts and finance</li> <li>◦ Employee recruitment process</li> </ul>
Vice- Principals	<ul style="list-style-type: none"> <li>◦ To discharge routine duty of Principal during absence of Principal</li> <li>◦ Annual Magazine</li> <li>◦ Resource Provision</li> <li>◦ Transport</li> <li>◦ Housekeeping including hostels</li> <li>◦ Prepare and execute academic calendar</li> <li>◦ Oversee the teaching-learning process</li> <li>◦ Carry out result analysis and submit corrective measures to Principal</li> <li>◦ Initiate supplementary teaching measures</li> <li>◦ Co-curricular activities</li> <li>◦ Formation of student council</li> <li>◦ Cultural activities</li> <li>◦ Sports activities</li> <li>◦ Student discipline</li> <li>◦ Student health care</li> </ul>

**Table 10.3 Governing Council and its Functionalities**

Head of the Departments/ P.G Coordinators	<ul style="list-style-type: none"> <li>o Plan and execute academic activities of the department</li> <li>o Maintain discipline and culture in the department</li> <li>o Maintain the department neat and clean</li> <li>o Pick and promote strengths of students / faculty / staff</li> <li>o Monitor academic activities of the department</li> <li>o Propose Department Budget</li> <li>o Maintain records of departmental activities and achievements</li> </ul>
Administrative Officer	<ul style="list-style-type: none"> <li>o Propose admission policy</li> <li>o Arrange campaign</li> <li>o Execute the admission process</li> <li>o Design and print admission brochure</li> <li>o Maintain and update college website</li> <li>o Maintain softcopy of photographs</li> <li>o Publicity of events</li> </ul>
Training and Placement Officer	<ul style="list-style-type: none"> <li>o Liaison with industry</li> <li>o Identify and provide for training needs of students</li> <li>o Arrange campus interviews</li> <li>o Proposing annual T &amp; P budget</li> </ul>
Superintendent- (Establishment, accounts, admissions)	<ul style="list-style-type: none"> <li>o Corresponding with AICTE, DTE, VTU, etc</li> <li>o College roster</li> <li>o Service Books</li> <li>o Faculty personal files</li> <li>o Recruitment process</li> </ul>





Director of Physical Education	<ul style="list-style-type: none"> <li>◦ Ensure smooth conduct of sports</li> <li>◦ Ensure proper use of gymnastics</li> <li>◦ Purchasing of sport items</li> <li>◦ Encourage students to participate in zonal tournaments</li> <li>◦ Creation and upkeep of sports facilities</li> <li>◦ Proposing annual budget</li> </ul>
Student Professional Activities	<ul style="list-style-type: none"> <li>◦ Organize events through students professional societies / chapters</li> <li>◦ Encourage student participation</li> <li>◦ Publication of technical magazine and news letters</li> <li>◦ Record of student participation and achievements in Co-curricular and extra – curricular activities</li> </ul>

**Service Rules:**

Service rules are constituted by V.V Sangha and mentioned in " V.V Sangha Institution service Manual".

**Recruitment Procedure:**

- The approval to the required posts for various departments as per statutory norms is taken from the Governing council and notification in the news papers, to invite applications as per AICTE norms.
- After receiving the applications, scrutinizing and short listing of eligible candidates is done on merit basis for various departments.
- Panel of experts comprise of VTU/DTE/AICTE/Industrial Nominee, Principal, HOD, subject expert will interview the eligible candidates.
- The selected candidates are appointed and orders are issued.
- Appointed Candidates should report to the duty on or before the given time.

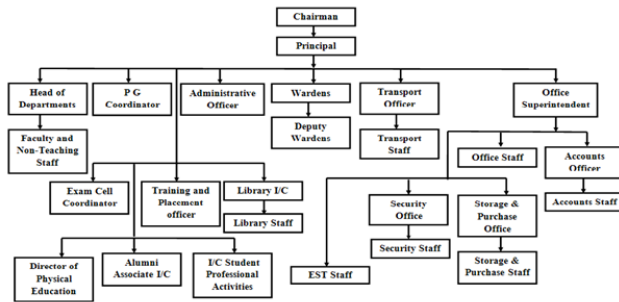
**Procedures and Promotional Policies:**

- Policies regarding promotion are as per AICTE.
- Additional increments are given to faculty who excel in academics and research.

**10.1.3 Decentralization in working and grievanceredressal mechanism (10)**

Institute Marks : 10.00

**Decentralization in working**



**Fig 10.1 Decentralized administration**

**GRIEVANCE REDRESSAL CELL**

The function of the cell is look into the complaints lodged by any student if any and then judge its merit. The grievance cell is also empowered to look into matters of harassment. Anyone with a genuine grievance may approach the department members in person or in consultation with officer in-charge student's grievance cell. In case person is unwilling to appear in self, grievance may be dropped in writing at the letter box/suggestion box of the grievance cell at administrative block.

**Process for disposal of Grievances**

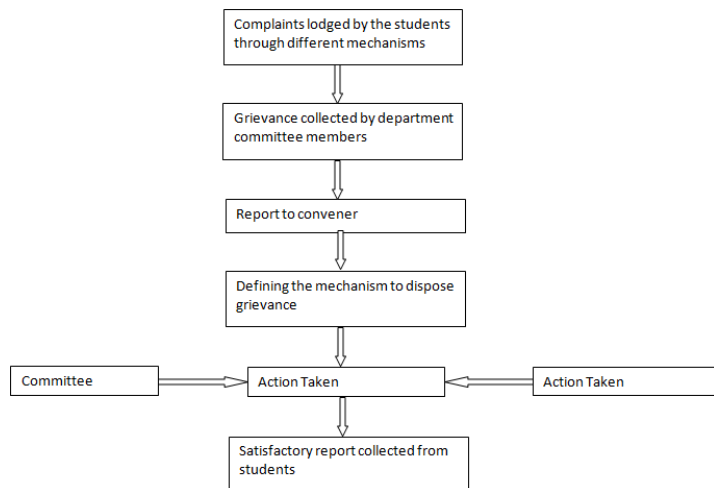


Fig 10.2 Grievance Disposal Mechanism

Table 10.4 Central Grievance Redressal Cell Committee

Sl.No	Name of the Faculty	Designation	Department	Role	Contact Number
1	Dr.Prabhavathi.S	Professor	E&CE	Convener	8105289789
2	Dr.Kotresh.S	Associate Professor	EEE	Member	9986275325
3	Mr.A.M Shivaprakash Swamy	Assistant Professor	Mechanical	Member	9036900991
4	Mrs.Manjula Patil	Assistant Professor	ISE	Member	9986413377
5	Mr.Sharanagouda.V.Patil	Assistant Professor	E&CE	Member	9980376126
6	Mr.ShivaKumar	Assistant Professor	CSE	Member	9449556693
7	Mr.Sagar	Assistant Professor	Civil	Member	9731433646
8	Mr.Prabhakar Meti	Assistant Professor	Mathematics	Member	9036550309

#### Anti-Ragging Committee

- The following team members are informed to act members of Anti-Ragging group.
- Group members are informed to make surprise visits as per the schedule given and one of team members are requested to write a brief report after inspection.
- These groups are formed to prevent and curb the menace of Ragging.

Table 10.5: Anti Ragging Committee

Sl.No	Name of the Member	Designation	Department	Role	Contact Number
1	Dr. B.Doddabasavana Goud	Professor	EEE	Convener	9449171271
2	Dr.D.Sai Madhavi	Associate Professor	CSE	Member	9945829150
3	Sri.M.R.Vijaykumar	Associate Professor	Civil	Member	9886893258
4	Sri.Manjunatha H.M	Associate Professor	Mathematics	Member	9481709495
5	Smt.K.R.Bhagya	Assistant Professor	Physics	Member	8762707799
6	Sri.Vasanth Kumar	Police Sub-Inspector	Police	Member	
7	Sri.S.M.Sanna Basaiah	Parents/Guardian	Rtd. Health Inspector	Member	
8	Sri.M.Venu Gopal	Parents/Guardian	Govt.Official	Member	

Table 10.6 : Anti Ragging Squad

Sl.No	Name of the Member	Designation	Department	Role	Contact Number
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1	Sri.Shridhar Bilagi	Assistant Professor	E&CE	Member	8105828383
2	Sri.Adhana Gouda	Assistant Professor	Civil	Member	9972612107
3	Sri.K.Phanidra Reddy	Assistant Professor	E&CE	Member	9241220917
4	Sri.Prabhakar Meti	Assistant Professor	Mathematics	Member	9036550309
5	Sri.S.P.Jagadeesh	Associate Professor	Mechanical	Member	9481716642

**Table10.7: Monitoring Cell on Ragging**

Sl.No	Name of the Member	Designation	Department	Role	Contact Number
1	Sri. K.Raghavendra Prasad	Associate Professor	EEE	Member	9448035570
2	Sri.B.Veeresh	Associate Professor	Mathematics	Member	9449632718
3	Sri.Khaja Mouinuddin	Associate Professor	E&CE	Member	8105263354
4	Mrs.Sridevi Mali Patil	Assistant Professor	CSE	Member	9008055312
5	Mrs.Rohini.H.M	Assistant Professor	E&CE	Member	9902502026

**Table10.8: Committee of wardens**

Sl.No	Name of the Member	Designation	Department	Contact Number
1	Sri.K.M.Shivaprasad	Asst. Professor & Warden of GN Boys Hostel	CSE	7899964163
2	Sri.Phanidhar Reddy	Asst. Professor & Warden of Campus Boys Hostel	E&CE	9241220917
3	Mrs.Sridevi Mali Patil	Asst. Professor & Warden of WW Hostel	CSE	9008055312
4	Mrs.Rohini.H.M	Asst. Professor & Warden of Gandhinagar Girls Hostel	E&CE	9902502026

**10.1.4 Delegation of financial powers (10)**

Institute Marks : 10.00

Financial powers are delegated/authorized to Principal to spend up to Rs. 1,00,000(One Lakh Rupees) and the HOD's of all the departments of this Institute are also authorized to spend up to Rs. 25,000(Twenty Five Thousand Rupees) for academic purposes.

**10.1.5 Transparency and availability of correct/unambiguous information in public domain (5)**

Institute Marks : 5.00

The institute has hosted its own website which is updated as and when required. The institute and programme specific information is made available to all aspirants through the web-site.

The web-site URL is: [www.rymec.in](http://www.rymec.in) (<http://www.rymec.in/>)

**10.2 Budget Allocation, Utilization, and Public Accounting at Institute level (30)**

Total Marks 30.00

**Summary of currentfinancial year's budget and actual expenditure incurred(for the institution exclusively)in the three previous financial years**

Total Income at Institute level: For CFY,CFYm1,CFYm2 & CFYm3

CFY : (Current Financial Year),

CFYm1 : (Current Financial Year minus 1),

CFYm2 : (Current Financial Year minus 2) and

CFYm3 : (Current Financial Year minus 3)

**Table 1 - CFY 2018-2019**

Total Income 181956393				Actual expenditure(till...): 178111619			Total No. Of Students 2565
Fee	Govt.	Grants	Other sources(specify)	Recurring including salaries	Non Recurring	Special Projects/Anyother, specify	Expenditure per student
166855086	36000	63500	15001807	169149356	8962263	0	69439.23

**Table 2 - CFYm1 2017-2018**

Total Income 210284966				Actual expenditure(till...): 193707423			Total No. Of Students 2590
Fee	Govt.	Grants	Other sources(specify)	Recurring including salaries	Non Recurring	Special Projects/Anyother, specify	Expenditure per student
174679277	38451	1000000	34567238	177751819	15955604	0	74790.51

**Table 3 - CFYm2 2016-2017**

Total Income 185014727				Actual expenditure(till...): 198848544			Total No. Of Students 2966
Fee	Govt.	Grants	Other sources(specify)	Recurring including salaries	Non Recurring	Special Projects/Anyother, specify	Expenditure per student
165697193	59000	0	19258534	177580156	21268388	0	67042.66

**Table 4 - CFYm3 2015-2016**

Total Income 184380992.93				Actual expenditure(till...): 239049215			Total No. Of Students 2944
Fee	Govt.	Grants	Other sources(specify)	Recurring including salaries	Non Recurring	Special Projects/Anyother, specify	Expenditure per student
164726847	0	0	19654145.93	174506460	64542755	0	81198.78

Items	Budgeted in 2018-2019	Actual Expenses in 2018-2019 till	Budgeted in 2017-2018	Actual Expenses in 2017-2018 till	Budgeted in 2016-2017	Actual Expenses in 2016-2017 till	Budgeted in 2015-2016	Actual Expenses in 2015-2016 till
Infrastructure Built-Up	3000000	2751639	12500000	11670452	12500000	9651979	30000000	28541462
Library	4000000	2414111	4000000	3039712	4000000	3207796	5000000	3782128
Laboratory equipment	5000000	4225128	10000000	3777440	15000000	10006429	35000000	33584020
Laboratory consumables	500000	415132	1000000	363180	1000000	928958	1000000	561566
Teaching and non-teaching staff salary	130000000	128157804	130000000	128768357	130000000	126835905	130000000	122148206
Maintenance and spares	12500000	9263565	12500000	11728486	12500000	12141483	15000000	12240269
R&D	1000000	563767	1000000	701299	1000000	749674	1000000	698473
Training and Travel	2000000	1209662	2000000	1407863	2000000	1739269	2500000	2014573
	2500000	1669763	3500000	2012649	3000000	3188497	2500000	2219718
Others, specify	32500000	27442444	32500000	30237985	35000000	30398554	35000000	33258800
<b>Total</b>	<b>193000000</b>	<b>178113015</b>	<b>209000000</b>	<b>193707423</b>	<b>216000000</b>	<b>198848544</b>	<b>257000000</b>	<b>239049215</b>

**10.2.1 Adequacy of budget allocation (10)**

Institute Marks : 10.00

The Budget proposal for the academic year is prepared by the individual departments as per the guidelines by V.V Sangha and Principal office. The collective budget proposals are scrutinized by the budget committee at the college level and further taken to governing council and management council for approval and sanction. Once it is sanctioned, the Principal will issue the budget order as shown in Annexure 10. The budget allocation and utilization for the last three years is adequate.

**10.2.2 Utilization of allocated funds (15)**

Institute Marks : 15.00

**Table 10.14 Utilization of allocated funds during 2016 - 2019**

	<b>2018-19</b>	<b>2017-18</b>	<b>2016-17</b>	<b>2015-16</b>
Utilization of the Budget (%)	92.28	92.68	92.05	93.01

**10.2.3 Availability of the audited statements on the institute's website (5)**

Institute Marks : 5.00

The audit statements of the academic years are available in the institute website:

<http://www.rymec.in/index.php/mandatory-disclosures> (<http://www.rymec.in/index.php/mandatory-disclosures>)

**10.3 Program Specific Budget Allocation, Utilization (30)**

Total Marks 30.00

Institute Marks :

Total Income at Institute level: For CFY,CFYm1,CFYm2 & CFYm3

CFY: (Current Financial Year),

CFYm1 : (Current Financial Year minus 1),

CFYm2 : (Current Financial Year minus 2) and

CFYm3 : (Current Financial Year minus 3)

**Table 1 :: CFY 2018-2019**

600000		Actual expenditure (till...): 492950		Total No. Of Students 459
Non Recurring	Recurring	Non Recurring	Recurring	Expenditure per student
200000	400000	156909	336041	1073.97

**Table 2 :: CFYm1 2017-2018**

1460000		Actual expenditure (till...): 1244541		Total No. Of Students 506
Non Recurring	Recurring	Non Recurring	Recurring	Expenditure per student
1000000	460000	926414	318127	2459.57

**Table 3 :: CFYm2 2016-2017**

4760000		Actual expenditure (till...): 4328384		Total No. Of Students 574
Non Recurring	Recurring	Non Recurring	Recurring	Expenditure per student
3500000	1260000	3257060	1071324	7540.74

**Table 4 :: CFYm3 2015-2016**

6639200		Actual expenditure (till...): 7768512		Total No. Of Students 555
Non Recurring	Recurring	Non Recurring	Recurring	Expenditure per student
5057200	1582000	4541236	3227276	13997.32

Items	Budgeted in 2018-2019	Actual Expenses in 2018-2019 till	Budgeted in 2017-2018	Actual Expenses in 2017-2018 till	Budgeted in 2016-2017	Actual Expenses in 2016-2017 till	Budgeted in 2015-2016	Actual Expenses in 2015-2016 till
Laboratory equipment	200000	156909	1000000	926414	3500000	3257060	5057200	4299736
Software	0	0	0	0	0	0	0	241500
Laboratory consumable	150000	133250	100000	64573	400000	365337	0	287922
Maintenance and spares	50000	40958	200000	136759	350000	308561	231000	738113
R & D	50000	34586	50000	24670	200000	111898	0	0
Training and Travel	50000	33800	10000	8500	10000	2000	100000	464740
	100000	93447	100000	83625	300000	283528	1251000	1736501
<b>Total</b>	<b>600000</b>	<b>492950</b>	<b>1460000</b>	<b>1244541</b>	<b>4760000</b>	<b>4328384</b>	<b>6639200</b>	<b>7768512</b>

**10.3.1 Adequacy of budget allocation (10)**

Institute Marks : 10.00

The department wise budget is sanctioned by VV Sangha office and the sanction letters are sent to the Principal, RYMEC. The principal along with the respective HOD's further over sees the utilization of the sanctioned budget. After approval of the budget from governing council and management council the process of procuring is carried out as per the norms specified by the V.V.Sangha.

**10.3.2 Utilization of allocated funds (20)**

Institute Marks : 20.00

**Table 10.21 Budget Utilization 2015 - 2019**

	2018-19	2017-18	2016-17	2015-16
Utilization of the Budget (%)	82.15	85.24	90.93	117

**10.4 Library and Internet (20)**

Total Marks 20.00

**10.4.1. Library**

"Knowledge Centre" is established along with the parent institution in the year 1980 with prime objective of supporting the parent organization programs. It is having, functionally designed building and it is located in the convenient accessible place in the college campus to the different group of library users. The soul of the library builds with our ancient people's knowledge bricks. The prime motto of the knowledge centre is to building the knowledge empowered society. The mission of the knowledge centre is to meet the expectations of the library stakeholders with available resources and by integrating external emerging trends with internal factors. The main goal of the knowledge centre is improving the service effectiveness, economy and efficiency of library management system, Safeguard the interest and benefits of the stakeholders and facilitate to develop the innovative thoughts and knowledge sharing culture among the library users. The quiver of the knowledge centre enfolded the both print and digital form of global standard mass and scholarly knowledge contents.

**Digital library:**

Digital library system integrated with campus network to enhance the learners' body of knowledge. It is also fostered distribution units at the departments for timely access of needed information at the work place with zero foot print.

The library management system is automated with Easylib Software to improve the efficiency of library housekeeping operations and provide speed service to the library users. It is also collaborated with national information network agencies (VTU e-resources Consortium & DELNET) and provided Internet and Wi-Fi facility to access required information.

The library users can also access digital resources through Wi-Fi at Library. The users can access the digital resources by using web browsers (Chrome and Firefox) by clicking following url in the campus network:

- o 192.168.8.4/gdlc1
- o 192.168.8.4/gdlc2
- o 192.168.8.4/gdlc3
- o 192.168.8.4/nptel
- o 192.168.8.4/qp

**Scope for self-learning:**

The Institute believes that self-learning and learning beyond syllabus have a great scope in the development of the career of an engineer. Everything in engineering cannot be taught in the class room or laboratories. The explosion in knowledge related to applied science and engineering has been so much that four years is too short a period even to cover one branch of engineering. This fact calls for the relevance for self-learning for young engineers. Institution has done to provide adequate facilities for self-learning to students so that they get motivated to learn more and more and ultimately become life-long learners and innovators.

Motivation for self-learning should be provided in the classrooms. A teacher has a great role to play in this. Discussing subject beyond the syllabus, providing exposure to exciting developments in science and technology around the globe, attempting solutions to problems in daily life etc. are the ways to motivate students for self-learning. They should also be motivated to do things themselves so that they gain confidence to try anything with their own hands. Institution should provide ample opportunities and facilities for the students.

**Self-Learning Facilities and Availability of Materials for Learning beyond Syllabus**

Institution has provided the following facilities to students for their self-learning and learning beyond syllabus Infrastructure:

1. 24/7 internet access with Wi-Fi connectivity
2. Classrooms/Labs with audio & visual aids
3. Language lab, Computer Labs etc.

**Learning resources:**

1. Committed faculty who motivate students in the process of their learning
2. Reputed E-Journals from Science Direct, Springer, Emerald, T&F, etc.
3. Reputed E-Books from Spinger, CRC, Elsevier, T&F, McGraw Hill, New Age & Packt
3. Online Databases and Digital Video
4. Licensed Software's.

The institution supports teachers to make learning efficient. The college provides a central library with all latest books and journals which the faculty can utilize effectively and provide comprehensive latest information to students. Students are encouraged to use the library independently to enhance their skills and knowledge.

Apart from this institute provides seminar halls where the students can participate in group discussions, debates, seminars etc. The institution and faculty members support and encourage every student to make use of Internet, computers and latest technologies available to upgrade themselves in their respective field of studies.

**Table 10.20 Library Details**

a. Carpet Area of library (in m <sup>2</sup> )	943 sqm
b. Reading Space (in m <sup>2</sup> )	257 sqm
c. Number of Seats in reading space	150 Seats



d.	Number of Users (Issue Book) per day (2018)	349
e	Number of Users (Reading space) per day (2018)	45
f.	Working days Timings( Monday –Friday)	8.00 am to 8.00 pm
	Weekend Timings: (Saturday)	8.00 am to 5.00 pm
	During Holidays /Sundays and Vacations	Closed
g.	Number of Library Staff	10
h.	Number of Library Staff with degree in Lib. Mgmt.	03
i.	Computerization for search, indexing, issue/return records	YES
J	Bar Coding Used?	Yes.
k.	Library Services on Internet/Intranet	Yes.
l.	INDEST/DELNET and other similar membership?	DELNET & VTU Consortium.

**Table 10.21 Quality of Learning Resources (Hard/Soft)**

a.	Availability of Digital library Contents	Yes
	Number of Courses	10
	Number of e-Books	24220
b.	Availability of exclusive server	Yes
c.	Availability over Internet/Intranet	Intranet
d.	Availability of exclusive space/room	Yes
e.	Number of users per day.	Campus wide Access on Intranet

- Computers are provided with Multimedia facility in central library where students can access all kinds of e-journals.
  - <http://www.sciencedirect.com>
  - <http://www.link.springer.com>
  - <http://www.tandfonline.com>
  - <http://www.icevirtuallibrary.com>
  - <http://emerald.com/insight/>
  - [www.rbmec.new.knimbus.com](http://www.rbmec.new.knimbus.com)
- Digital library is provided in central library where users can access kinds of e-resources on/off campus.
- The users can access the e-Books/e-journals through Wi-Fi and Digital Library at any time.
- The students can access eBooks/e-journals at library computer Centre as well as in College Campus and hostels with wifi.
- The learning resources centre is open 12 hours a day for use and will be extended on demand. The library contains the Reference Section with wide variety of resources, a quiet study area, the office, and a photocopier room. There is a study area with computer facilities, and a group study/reading room. Library aims to offer focused provision for the subjects in which the College admits mature undergraduates as well as postgraduates. The collection comprises textbooks, general reference material, Question Bank and career-oriented resources.
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Institute Marks : 10.00

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  - <http://www.tandfonline.com>
  - <http://www.icevirtuallibrary.com>
  - <http://emerald.com/insight/>
  - [www.rbmec.new.knimbus.com](http://www.rbmec.new.knimbus.com)
- Digital library is provided in central library where users can access kinds of e-resources on/off campus.
- The users can access the e-Books/e-journals through Wi-Fi and Digital Library at any time.
- The students can access eBooks/e-journals at library computer Centre as well as in College Campus and hostels with wifi.
- The learning resources centre is open 12 hours a day for use and will be extended on demand. The Library contains the Reference Section with wide variety of resources, a quiet study area, the office, and a photocopier room. There is a study area with computer facilities, and a group study/reading room. Library aims to offer focused provision for the subjects in which the College admits mature undergraduates as well as postgraduates. The collection comprises textbooks, general reference material, Question Bank and career-oriented resources.
- Video Course:
  - VTU e-Learning/NPTEL can accessed though Digital Library
  - NPTEL on online <http://nptel.iitm.ac.in/>

#### 10.4.2 Internet (10)

Institute Marks : 10.00

Name of the Internet provider	AirTel
Available band width	125 Mbps
WiFi availability	YES
Internet access in labs, classrooms, library and offices of all Departments	YES
Security arrangements	YES

#### Annexure I

##### (A) PROGRAM OUTCOME (POs)

Engineering Graduates will be able to:

- Engineering Knowledge** : Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
- Problem Analysis**: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
- Design/development of solutions**: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
- Conduct investigations of complex problems**: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
- Modern tool usage**: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.
- The engineer and society**: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.
- Environment and sustainability**: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
- Ethics**: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
- Individual and team work**: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
- Communication**: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.
- Project management and finance**: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
- Life-long learning**: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

##### (B) PROGRAM SPECIFIC OUTCOME (PSOs)

PSO1	Graduates are able to Design, Analyze and Develop Mechanical Systems
PSO2	Graduates are Capable of Developing Research Skills in Self Sustainable Energy sources and Composite Materials.

## Declaration

The head of the institution needs to make a declaration as per the format given -

- I undertake that, the institution is well aware about the provisions in the NBA's accreditation manual concerned for this application, rules, regulations, notifications and NBA expert visit guidelines inforce as on date and the institutes hall fully abide by them.
- It is submitted that information provided in this Self Assessment Report is factually correct.
- I understand and agree that an appropriate disciplinary action against the Institute willbe initiated by the NBA. In case, any false statement/information is observed during pre-visit, visit, postvisit and subsequent to grant of accreditation.

**Head of the Institute**

Name : K Veeresh

Designation : Principal

Signature :



Seal of The Institution :



Place : Ballari

Date : 25-11-2019 16:47:15