VIGNAN'S
Foundation for Science, Technology & Research
(Deemed to be UNIVERSITY)
-Estd. u/s 3 of UGC Act 1956

BIOMEDICAL ENGINEERING

Department Of Electronics and Communication Engineering

Action Taken Report on B. Tech BM Program R 16 Feedback Implemented in R19 introduced in the AY 2019 - 20

Action Taken Based on Suggestions from the students:

Q1. Course Contents of Curriculum are in tune with the Program Outcomes.

Q2. Course Contents are designed to enable Problem Solving Skills and Core competencies

Q3. Courses placed in the curriculum serves the needs of both advanced and slow learners.

Q4. Contact Hour Distribution among the various Course Components (LTP) is satisfiable.

Q5. The electives offered in relation to the Technological advancements in Biomedical and allied fields.

Q6. The design of courses in the Curriculum is considered the extra learning or self learning.

Q7. Composition of Basic Sciences, Engineering, Humanities and Management Courses is a right mix and satisfiable.

Q8. Laboratory sessions are sufficient to improve the technical skills of students.

Q9. Inclusion of Minor Project/ Mini Projects improved the technical competency and leadership skills among the students

Analysis of Overall Feedback given by the Students on R 16

Parameters	Rating 5	Rating 4	Rating 3	Rating 2	Rating 1	Average Score	Rating
Q1	67.3	32.7	0	0	0	4.673	Excellent
Q2	36.4	63.2	0.5	0	0	4.363	Excellent
Q3	32.3	67.7	0	0	0	4.323	Excellent
Q4	65	30.9	4.1	0	0	4.609	Excellent
Q5	42.7	57.3	0	0	0	4.427	Excellent

Q6	45.5	53.6	0.9	0	0	4.446	Excellent
Q7	48.6	50.5	0.9	0	0	4.477	Excellent
Q8	38.2	61.8	0	0	0	4.382	Excellent
Q9	41.8	57.7	0.5	0	0	4.413	Excellent

Itemized responses given to the suggestions of students

Suggestion: Mathematics should be in par with biology background students
Action Taken: Bridge courses on mathematics basics and Mathematics for biologists subjects are introduced for students to emphasize more on topics that are needed throughout the course

Suggestion: Network theory subject should be given by keeping biomedical applications in mind
Action Taken: Applications are added to the network theory course

Suggestion: Topics are repeated in Biomedical Instrumentation, DTE-1, DTE-2
Action Taken: Since there are redundant topics in the DTE-1 and DTE-2 both of them are combined into one subject..

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Suggestion: Due to heavy mathematical and computational work in the 2 year first semester, Signals and Systems course should be moved to even semester in 2^{nd} year.
Action Taken: Due to heavy mathematical and computational work in the 2 year first semester, Signals and Systems course is moved to even semester in 2^{nd} year.

Suggestion: Exchange programs or internships in foreign university are beneficial.
Action Taken: Final year semesters internships are planned in Nanyang Technological University, Singapore.

Suggestion: New courses such a robotics and computer vision related medical applications should be improved.
Action Taken: New courses such a robotics and computer vision related medical applications are introduced.

Action Taken Based on Suggestions from the Parents:

Q1. Your ward is sensitized towards issues like gender equality, environment and sustainability, ethics and values etc., through relevant courses in the curriculum

Q2. The academic flexibility embedded in the curriculum provides opportunities to students to pursue their interest by choosing from a vast number of pathways / electives from own area/specialization as well as from other areas.

Q3.Competency of your ward is on par with the students from other Universities/Institutes.

Q4. The curriculum has been designed to make your ward industry ready by imparting analytical and reasoning, language and soft skills in addition to technical competencies, as desired by the biomedical and allied industries.

Q5. Course Curriculum is of the global standard and is in tune with the needs of electrical and allied industries.

Analysis of Overall Feedback given by the parents on R 16

Parameters	Strongly Agree	Agree	Moderate	Disagree	Strongly Disagree	Avg. Rating	Rating
Q1	11.8	82.4	5.9	0	0	4.063	Excellent
Q2	11.8	88.2	0	0	0	4.118	Excellent
Q3	52.9	47.1	0	0	0	4.529	Excellent
Q4	29.4	70.6	0	0	0	4.294	Excellent
Q5	35.3	64.7	0	0	0	4.353	Excellent

Itemized responses given to the suggestions of parents

Suggestion: Advanced courses related to biomedical with software should be incorporated.
Action Taken: Advanced courses related to biomedical i.e python for biomedical applications are introduced.

Suggestion: . Hospital training should be mandatory for students.
Action Taken: Hospital training is planned in the end of 4th semester during summer break.

Suggestion: Minor projects are good in the syllabus.

Suggestion: Projects that are tailored to society problems should be there.
Action Taken: Social centric projects are introduced in the course.

Suggestion: Internships in MNC companies/ Hospitals are to be encouraged.
Action Taken: Internships in the MNC manufacturing facilities such as AMTZ and Hospital equipment training is planned in the terminal semester..

Action Taken Based on Suggestions from the faculty:

Q1. Course Contents of Curriculum are in tune with the Program Outcomes

Q2. The depth of the course content is adequate to have significant learning outcomes.

Q3. Curriculum is sufficient to bridge the gap between industry standards /current global scenarios and academics

Q4. To practically enable to develop experimental, design, problem solving and analysis skills of the students.

Q5. The timely coverage of syllabus is possible in the mentioned number of hours.

Q6. The Curriculum providing opportunity towards Self learning to realize the expectations

Q7. Rate the capability of the curriculum for improving ethical values in students

Q8. The number of theoretical courses and laboratory sessions sufficient to improve the technical skills of students

Q9. Electives enable the passion to learn new technologies in emerging area

Analysis of Overall Feedback given by the faculty on R 16

Parameters	Rating 5	Rating 4	Rating 3	Rating 2	Rating 1	Average Score	Rating
Q1	40	60	0	0	0	4.4	Excellent
Q2	36	64	0	0	0	4.36	Excellent
Q3	52	48	0	0	0	4.52	Excellent
Q4	64	36	0	0	0	4.64	Excellent
Q5	40	60	0	0	0	4.4	Excellent
Q6	12	84	4	0	0	4.08	Excellent
Q7	28	72	0	0	0	4.28	Excellent
Q8	40	60	0	0	0	4.4	Excellent
Q9	80	20	0	0	0	4.8	Excellent

Itemized responses given to the suggestions of faculty

Suggestion: Hand-on training Laboratory can be established with donated instruments.
Action Taken: Donations for laboratories are being encouraged so that they can be opened for internal working display.

Suggestion: Analog Electronics and digital Electronics should be retained, which will provide basic electronic knowledge.
Action Taken: Analog Electronics and digital Electronics are retained and applications related to biomedical are kept as gain skills by performing various projects.

Suggestion: DTE-1 and DTE-2 redundant topics are more and should be reconsidered.
Action Taken: DTE-1 and DTE-2 redundant topics are more and combined as one subject.

Suggestion: There are redundant topics in the Medical Imaging techniques and basic clinical sciences and biomechanics subjects.

Action Taken: Redundant topics in the Medical Imaging techniques and basic clinical sciences and biomechanics subjects are removed.

Suggestion: Medical Imaging processing techniques and medical applications are to improved.
Action Taken: Medical Imaging processing techniques and medical applications redundant topics are removed.

Suggestion: Swayam courses should be learnt and given credits.
Action Taken: Swayam courses are introduced as a part of the curriculum so that they can learn extra subjects based on credits.

Action Taken Based on Suggestions from the Employer:

Q1. Course Contents of Curriculum are in tune with the Program Outcomes

Q2. Curriculum helps in bridging gap between industry and academic institution.

Q3. Applicability of the domains and the tools used for designing the experiments in terms of existing practices in the Biomedical Engineering Industry.

Q4. Professional and Open Electives are in relation to the Technological advancements and fulfilling the needs of biomedical and allied industries.

Q5. Curriculum develops skills to model and analyze the biomedical and allied industrial issues.

Analysis of Overall Feedback given by the Employers on R 16

Parameters	Rating 5	Rating 4	Rating 3	Rating 2	Rating 1	Average Score	Rating
Q1	18.2	81.8	0	0	0	4.182	Excellent
Q2	54.5	45.5	0	0	0	4.545	Excellent
Q3	36.4	63.6	0	0	0	4.364	Excellent
Q4	18.2	81.8	0	0	0	4.182	Excellent
Q5	72.7	27.3	0	0	0	4.727	Excellent

Itemized responses given to the suggestions of Employer

Suggestion: During summer breaks, students should have hospital visits and workshops on hands on training on Medical Equipment.
Action Taken: During summer breaks, students will be taken to hospital visits and workshops on hands on training on Medical Equipment.

Suggestion: Training in hospitals should be not confined to single hospital but 2 to 3 hospitals.
Action Taken: Multiple hospital trainings will be given in the 4^{th} semester.

Suggestion: Microprocessor and microcontroller topics should contain ARM processor.
Action Taken: ARM processor topic is added to the microcontroller and microprocessor course. .

Suggestion: Programming languages based on the open source platforms are vitally important.
Action Taken: Python programming on Biomedical applications are introduced..

Suggestion: If projects are done by mixing branches that will really encourage work culture in groups.
Action Taken: Interdisciplinary and sociocentric projects are introduced to encourage work culture in groups.

Action Taken Based on Suggestions from the Alumni:

Q1. Curriculum has paved a good foundation in understanding the basic engineering concepts.

Q2. Course Contents of Curriculum are in tune with the Program Outcomes

Q3. Curriculum imparted all the required Job Oriented Skills

Q4. Professional and Open Electives of Curriculum served the technical advancements needed to serve in the industry

Q5. Tools and Technologies learnt during laboratory sessions has enriched the problem-solving skills

Q6. Ability to compete with your peers from other Universities

Q7. Current Curriculum is superior to your studied Curriculum

Analysis of Overall Feedback given by the Alumni on R 16

Parameters	Rating 5	Rating 4	Rating 3	Rating 2	Rating 1	Average Score	Rating
Q1	66.7	33.3	0	0	0	4.667	Excellent
Q2	100	0	0	0	0	5	Excellent
Q3	66.7	33.3	0	0	0	4.667	Excellent
Q4	100	0	0	0	0	5	Excellent
Q5	66.7	33.3	0	0	0	4.667	Excellent

Q6	100	0	0	0	0	5	Excellent
Q7	100	0	0	0	0	5	Excellent

Itemized responses given to the suggestions of Alumni

Suggestion: Coding subjects should be added.
Action Taken: Coding using Python is added to the course curriculum.

Suggestion: Projects involving other branches should also be introduced.
Action Taken: Interdisciplinary and sociocentric projects are introduced to encourage work culture in groups.

Suggestion: Computation based courses are to introduced.
Action Taken: Python programming on Biomedical applications are introduced..

Suggestion: Courses on robotics and machine learning will benefit us.
Action Taken: New courses such a robotics and computer vision related medical applications are introduced.

Signature of the coordinator

HOD ECE