Academic Regulations-2019 for B.Tech. Programmes

Applicable for students admitted from 2019-20 academic year onwards

(UNDER CHOICE BASED CREDIT SYSTEM EFFECTIVE FROM 2019-20 ADMITTED BATCH)

GAYATRI VIDYA PARISHAD COLLEGE OF ENGINEERING (A)

Affiliated to JNTU Kakinada, Kakinada
2019

These Regulations shall be called the "Gayatri Vidya Parishad College of Engineering (Autonomous) Regulations- 2019 for the Award of B.Tech. Degree".

These regulations shall be applicable for students enrolling for B. Tech. Degree programs at the Institute from Academic Year 2019-20.

Admission to the above program shall be made subject to the eligibility, qualifications and specialization as per the guidelines prescribed by the APSCHE, AICTE and JNTU-K from time to time. The medium of instruction for course work and examinations at the Institute shall be English.

The duration of the programme for the Degree of Bachelor of Technology will be four academic years, with two semesters in each year. However, if a student cannot complete course of study within 4 years, he/she can do so by taking more time but not more than 8 years from the year of first admission. For the students availing Gap Year facility (Ref. 7), this period may be extended by a maximum of two years and these two years would not be counted in the maximum period of graduation.

1. Structure of the Programme:

Composition	Credit Ranges
Induction Programme	0
Basic Sciences	24 - 28
Humanities and Social Sciences	8-12
Engineering Sciences	25-30
Professional Core	47-63
Industry Lectures	1
Professional Electives	18
Skill Based Lab Electives	2
Open Electives	9
Free Electives	2
Socially Relevant Project, Mini-Project and Project Work	12.5
Non-Credit Mandatory Courses	0
Total Credits	**160**

Semester	Composition		Credits
0	Induction Programme (2-3 weeks)		**0** Credits
I	4-6 Theory + 3-4 Labs	Includes Domain specific workshop Non-Credit Mandatory Course-I	**40** Credits
II	4-6 Theory + 4-5 Labs		
III	6-7 Theory + 3-4 Labs	Includes Design Thinking & Innovation Programming with Python Non-Credit Mandatory Course-II	**42** Credits
IV	5-7 Theory + 3-4 Labs		
V	6-7 Theory + 3-4 Labs (includes Professional Elective - I, II) Socially relevant project (16 Hrs) Mini Project-I / Intern-I (2 Weeks during summer break between IV and V semester)	Includes AI tools, IoT, Industry Lectures, Non-Credit Mandatory Course-III	**41** Credits
VI	7 Theory + 3-4 Labs (Including Professional Elective - III, IV) Skill Based Lab Elective- I Free Elective-I		
VII	6-7 Theory + 3-4 Labs Professional Elective - V, VI Skill Based Lab Elective -II Open Elective - I Free Elective-II Mini Project-II / Intern-II (3 Weeks during summer break between VI and VII semester)		**37** Credits
VIII	Open Elective - II, III Project / Intern-III	Provision for online electives	
		Total	**160 Credits**

Notation: PE-Professional Elective, IL-Industry lectures, SBLE-Skill Based Lab Elective, FE-Free Elective, OE-Open Elective, PW- Project work, SRP-Socially Relevant Project, MP: Mini-Project, NMC-Non-Credit Mandatory course.

Each course is normally assigned a certain number of credits as follows:

1 credit for 1 lecture period per week. 1 credit for one tutorial period per week. 1 credit for 2 laboratory periods per week.

Massive Open Online Courses (MOOCs): In order to promote the self-learning component, students are permitted to earn a maximum of 32 credits (20% of total 160 credits) through online courses such as MOOCs etc. However, the courses shall be chosen from SWAYAM online and other external agencies under Professional electives (at least 12 week course), Open electives (at least 12 week course), Free electives (at least 4 week course) category as approved by the respective Boards of Studies.

Skill Based Lab Electives: Each Skill Based Lab Elective will be conducted on thrust areas for a period of 32 hours. The evaluation shall be totally internal and to be conducted at the end of the course.

Free Electives: Each Free Elective will be conducted for a period of 16 hours. The evaluation shall be totally internal and to be conducted at the end of the course.

Industry lectures: Lecture(s) by expert(s) from industry will be for a period of at least 16 hours. The evaluation shall be based on the performance in the test(s) to be conducted at the end of the Lecture(s).

Socially Relevant Project: The student has to spend a minimum of 16 hours on any socially relevant issue / problem through which an engineering solution shall be arrived. A report shall be submitted for evaluation.

Mini-Project: The student has to work for an Industry oriented project / Internship in an Industry / R&D organizations / National Labs / Institutes of high repute during summer vacations in the form of an Internship. The student shall submit a technical report for evaluation.

Project Work: The project work shall be of somewhat innovative in nature, with research / industry orientation. A project batch shall comprise of a maximum of four students.

2. Registration:

A student shall register for courses in each semester according to the choice provided and subjects offered by the concerned department under Choice Based Credit System (CBCS).

3. Attendance Requirements:

It is desirable for a student to put up 100% attendance in the class in all the courses (except courses registered under MOOCs from outside agencies as approved in the BoS). However, a student shall be permitted to appear for the end semester examinations, provided he/she puts up a minimum average attendance of 75% from all the courses registered excluding those under MOOCs in the semester. However, condonation for shortage of attendance between 65-74% may be given on Medical grounds, if a certificate to the extent is submitted to the HOD when the student first returns to the classes. The student concerned will be permitted to take the end semester examination, on payment of condonation fee. Attendance may also be condoned as per the State Government rules for those who participate in prestigious sports, co-curricular and extra-curricular activities provided their attendance is in the minimum prescribed limits for the purpose and as recommended by the authorities concerned.

Attendance against each course will be indicated in the marks memo by a letter grade as follows:

Attendance	Grade
90% and above	A
75% to 89%	B
65% to 74%	C
below 65%	D

A student who gets less than 65% attendance on an average from all the courses in any semester shall not be permitted to take the end semester examination and his/her registration for that semester stands cancelled. The student shall re-register for that entire semester when offered next and then continue the course of study from that semester onwards.

Letter grade 'E' shall be awarded in case of attendance grade for online courses (under MOOCs) to those students, who register with prior permission from HoD, through valid certificate directly from SWAYAM online or other external agencies as approved in respective BoS. The credits earned through such courses shall be considered under the respective category of courses.

4. Method of Evaluation:

The performance of a student in each semester shall be evaluated through Continuous Internal Evaluation and End Semester Examination. The student shall earn the credits in the respective courses by obtaining at least the marks as specified in the pass criteria given below:

S. No.	Type of course	Continuous Internal Evaluation	End Semester Examination (3 hours)		Pass Criteria
			Max. marks (Paper setting)	Evaluation	
1	Theory Course (2-4 Credits)	30 Marks Two tests each for 20 marks. 2:1 weighted averaged marks with the higher score carrying a weightage of 2 shall be considered. Four assessments by at least any two of the following methods each for 10 marks and average shall be considered. (Assessment Methods: Assignment / Quiz / Term paper / Tutorial / Surprise test / seminar / Open book test / Case study / Lab activity / Projects /Any other Teacher specific method).	70 Marks (External)	Double valuation (both Internal and External)	35% (25 marks) from End semester and 40% (40 marks) on aggregate from Internal and End semester Examination put together
2	Practical Course including Engg. Graphics (1-2.5 Credits)	40 Marks (20 marks from day-to-day work, 20 marks from internal examination at the end of each cycle, Average marks shall be considered in each component).	60 Marks (External)	External	35% (21 marks) from End semester Examination and 40% (40 marks) on aggregate from Internal and End semester Examinations put together.
3	Theory Course with integrated Lab Including IoT / AI Tools / (3-4 Credits)	70 Marks 20 Marks (weighted average of two mid-term tests) and 10 Marks from Assignment 20 Marks from day-to-day evaluation of the lab activities. 20 Marks from Lab Exam	130 Marks (Internal) 70 Marks from Theory Exam and 60 Marks from Lab Exam	Internal Double valuation for Theory Lab Examination to be conducted by concerned teacher and a senior expert in the subject from the same department)	35% (25 of 70 marks) from End semester Theory Examination; 35% (21 of 60 marks) from End semester Lab Examination and 40% (80 of 200 marks) of total marks from theory and Lab components put together are required to pass the course. Total marks obtained out of 200 will be reduced to 100 for award of grade.

4	Design Thinking and Innovation	40 Marks from day-to-day evaluation of the activities.	60 Marks (Internal)	Internal Examination to be conducted by concerned teacher and a senior expert in the subject. (based on the report, Presentation and Viva-voce examination).	35% (21 of 60 marks) from End semester Examination and 40% (40 marks) on aggregate from Internal and End semester Examinations put together.
5	Professional Elective / Open Elective (3 Credits)	30 Marks (same as that for Theory course in S. No. 1)	70 Marks (Internal)	Double valuation (both internal)	35% (25 marks) from End semester and 40% (40marks) on aggregate from Internal and End semester Examinations put together
6	Free Elective (1 Credit)	---	50 Marks (Internal)	Double valuation (both internal)	Total marks obtained out of 50 will be pro-rated to 100 for award of grade. 40% (40 Marks) from End semester Examination
7	Skill Based Lab Elective (1 Credit)	---	50 Marks (Internal)	Internal (Lab Examination to be conducted by concerned teacher and a senior expert in the subject from the same department)	Total marks obtained out of 50 will be pro-rated to 100 for award of grade. 40% (40 Marks) from End semester Examination
8	Industry Lectures (1 Credit)	---	50 Marks (Internal)	Concerned Expert / Faculty In-charge	Total marks obtained out of 50 will be pro-rated to 100 for award of grade. 40% (40 Marks) from End semester Examination
9	Non-credit Mandatory course (0 Credit)	-----	50 Marks (Internal)	Double valuation (both Internal)	Total marks obtained out of 50 will be pro-rated to 100 for award of grade. 40% (40 Marks) from End semester Examination

10	Socially Relevant Project (0.5 Credit)	---	50 Marks (Internal)	Through an Internal committee (comprising of HoD, Project Supervisor and a senior faculty of the department) based on Report, Presentation and Viva-voce examination.	Total marks obtained out of 50 will be pro-rated to 100 for award of grade. 40% (40 Marks) from End semester Examination
11	Mini-Project-I and II (1-2 Credits)	---	50 Marks (Internal)	Through an Internal committee (Same as that for Socially Relevant Project in S.No. 9)	Total marks obtained out of 50 will be pro-rated to 100 for award of grade. 40% (40 Marks) from End semester Examination.
12	Project Work (9 Credits)	40 Marks (Two Mid-Term evaluations each for 20 Marks based on the progress, through an Internal committee comprising of HoD, Project Supervisor and a senior faculty of the department.	60 Marks (External)	External (based on the report, Presentation and Viva-voce examination).	35% (21 marks) from End semester Examination and 40% (40 marks) on aggregate from Internal and End semester Examinations put together.

5. Double valuation:

In case of double valuation, a chief examiner appointed for each course shall monitor the valuation process. If the difference between the first and second valuations is less than or equal to 15% of maximum marks, the better of the two valuations shall be awarded. If the difference between the first and second valuation is more than 15% of maximum marks, the chief examiner shall value the script. The marks given by the chief examiner shall be final.

5. Supplementary examinations:

Supplementary examinations for the odd semester shall be conducted with the regular examinations of even semester and vice versa.

In case a student fails in any course under elective including online course, he/she may be permitted to register for the same or another course.

In case a student fails in Industry lectures, he/she shall appear again for such lectures when offered next and acquire the credits.

If a student fails in Design Thinking and Innovation / Socially Relevant Project/ Mini-Project / Project Work, the student shall appear for supplementary evaluation as and when conducted.

6. Promotion Criteria:

A student shall be promoted from IV to V semester, if he/she registered at least **82** Credits and pass in courses corresponding to at least **57** credits at the end of IV semester, from I, II, III semester regular and supplementary examinations and regular examinations of IV semester.

A student shall be promoted from VI to VII semester, if he/she registered at least **123** Credits and pass in courses corresponding to at least **86** credits at the end of VI semester, from I to V semester regular and supplementary examinations and regular examinations of VI semester.

7. Entrepreneurship:

7.1 Gap Year - concept of Student Entrepreneur in Residence: Outstanding students who wish to pursue entrepreneurship full time can take a break of one year, after the first year with prior approval from the Principal. This may be extended to two years at the most and these two years would not be counted for the time for the maximum time for graduation. The Gap Year facility may be given to ensure syllabus continuity at the time of rejoining after an appraisal process by an incubator where the student is attached.

7.2 Student's entrepreneurs working on a Start-up idea from first year of college may be permitted to convert their Start-up project as their final year project towards degree completion. Mentors assigned by Incubators established may be allowed to conduct Viva Voce. Project reports certified by the Incubators may be considered for the award of credits.

7.3 Students may be permitted to undertake their Industrial Seminar / Lecture, Industrial Visit, Mini-Project, Project work at Technology / Business Incubators where required facilities are being setup and subject to adherence to evaluation procedures of Gayatri Vidya Parishad College of Engineering (Autonomous) by the mentors.

7.4 Provision for grace marks and attendance may be given on case to case basis upto 5% and 20% respectively in every semester for student Start-up teams, approved by competent authorities. Such grant is at the discretion of the Principal.

8. Grading System:

Absolute grading system shall be followed for the award of grades.

Grade Point: It is a numerical weight allotted to each letter grade on a 10-point scale.

Letter Grade: It is an index of the performance of students in a said course. Grades are denoted by letters O, A+, A, B+, B, C, P and F.

Based on the marks secured, a Grade Point is awarded as per the following:

Grades and Grade Points:

Marks Range	Letter Grade		Grade Point
90-100	O	(Outstanding)	10
80-89	A+	(Excellent)	9
70-79	A	(Very Good)	8
60-69	B+	(Good)	7
50-59	B	(Fair)	6
*40-49	C	(Satisfactory)	5
-	F	(Fail)	0
-	Ab	(Absent)	0

* Pass Mark

Performance grade for online courses: A suitably prorated performance grade shall be awarded, considering the percentage/grade given by the respective agency for those who opt to earn credits through valid certificate directly from external agencies (as approved in respective BoS). Performance grade for online courses facilitated by the college, shall be awarded on par with other regular courses.

The award of CLASS / DIVISION is as per the following:

First class with distinction $CGPA \geq 7.75$

First class $6.75 \quad CGPA < 7.75$

Second class $5.75 \quad CGPA < 6.75$

Pass class $CGPA < 5.75$

CGPA to Percentage of Marks Conversion: **Percentage of Marks = (CGPA-0.75)*10**

Computation of Semester Grade Point Average (SGPA) and Cumulative Grade Point Average (CGPA): The SGPA is the ratio of sum of the product of the number of credits with the grade points scored by a student in all the courses taken by a student and the sum of the number of credits of all the courses undergone by a student in a semester, i.e.

$$\textbf{SGPA } (S_j) = \Sigma(C_i \times G_i) / \Sigma C_i$$

where C_i is the number of credits of ith course and G_i is the grade point scored by the student in i^{th} course.

The CGPA is also calculated in the same manner taking into account all the courses undergone by a student over all the semesters of a programme, i.e.

$$CGPA = \Sigma(C_i \times S_i) / \Sigma C_i$$

where S_i is the SGPA scored by the student in the ith semester and C_i is the total number of credits in that i^{th} semester. The SGPA and CGPA shall be rounded off to two decimal points and reported in the transcripts.

Transcript for each semester shall be issued containing letter grades and grade points along with attendance grade, for each of the subjects registered, SGPA of that semester and CGPA up to that semester. Marks will not be displayed on the transcript.

A consolidated transcript indicating the performance in all semesters shall also be issued.

9. Re-registration for failed courses:

A candidate shall be given one chance to re-register for a maximum of four failed courses(s) of regular B.Tech. programme, where in the internal marks secured by a candidate are less than 50%. The re-registration is permitted only after completion of VIII semester as and when the subject(s) are offered. In the event of re-registration, the internal marks and end semester examination marks obtained in the previous attempt are nullified.

10. Withholding of Grades:

The Grades of a student in a semester shall be withheld and not declared if the student has disciplinary action pending against him/her.

11. Minor degree / Honours degree programme (subject to approval from JNTU-K):

A provision to pursue Minor degree programme, other than his / her discipline in regular B.Tech programme, is available to students satisfying requisite criteria. The student has to acquire 20 more credits in addition to 160 credits required for the award of the B.Tech. degree. The student is eligible for admission into minor degree programme from V semester onwards, if he / she acquires a minimum of **8** CGPA from the courses of I to IV semesters without any backlogs at the time of allotment.

A provision to pursue Honours degree programme, in the same discipline as that of his / her regular B.Tech programme, is available to students satisfying requisite criteria. The student has to acquire 20 more credits in addition to 160 credits required for the award of the B.Tech. degree. The student is eligible for admission into Honours degree programme from V semester

onwards, if he / she acquires a minimum of **8** CGPA from the courses of I to IV semesters without any backlogs.

Course structure:

Semester	Courses
V	2 Theory *3 Credits = 6 Credits
VI	2 Theory *3 Credits = 6 Credits
VII	2 Theory *3 Credits = 6 Credits
VIII	Mini-Project = 2 Credits
Total	**20 Credits**

A student shall be permitted only to register either for Minor degree programme or for Honours degree programme.

The allotment will be done based on CGPA and permissible number of students as decided by the administration from time to time.

The class work for both the programmes shall be conducted outside the contact hours of the regular B.Tech. programme.

If a student gets detained (due to shortage of attendance / credits) during V to VIII semesters of regular B.Tech. programme, his/her registration for Minor / Honours degree programme gets cancelled and the student shall not be permitted to pursue the Minor / Honours degree programme further.

A student shall be permitted to appear for the end semester examinations, provided he/she puts up a minimum attendance of 75% in each course registered. However, condonation for shortage of attendance between 65-74% may be given on Medical grounds. The student concerned will be permitted to take the end semester examination, on payment of condonation fee. Attendance against each course will be indicated in the marks memo by a letter grade as that of regular B.Tech. programme.

If a student gets detained (attendance less than 65%) or failed in any course registered under Honours degree programme, his registration for the Honours degree programme shall be cancelled.

If a student gets detained (attendance less than 65%) in any course registered under Minor degree programme in V, VI, VII semesters, he / she has to re-register for that course in subsequent semester(s). The course work for Minor degree programme shall be completed within four years of his/her admission into B.Tech. Programme, otherwise his/her registration for the Minor degree programme will be cancelled.

The internal and end semester evaluation system for Theory, Practical, Theory with integrated Lab and Mini-Project shall be same as that of similar type of courses in regular B.Tech. programme. The regular and supplementary examination system for Minor degree programme shall be similar to that of the regular B.Tech. programme.

Minor / Honours degree will be awarded only after successful completion of all 20 Credits. Separate CGPA shall be given for the Minor / Honours degree programme. Provision to withdraw from Minor / Honours degree programme is allowed in any semester. No Class / Division will be awarded in case of Minor / Honours degree programme.

The Minor in a discipline shall be mentioned in the degree certificate "**Bachelor of Technology in ABC with Minor in XYZ"**. Example: **Bachelor of Technology** in Mechanical Engineering with **Minor** in Computer Science and Engineering.

The Honours in a discipline shall be mentioned in the degree certificate "**Bachelor of Technology (Honours) in ABC"**. Example: **Bachelor of Technology (Honours)** in Mechanical Engineering.

12. Minimum Academic Requirement for award of degree:
1. A student shall pass in all courses corresponding to 160 credits, secure a Pass in all the Non-Credit mandatory courses to be eligible for the award of the B.Tech. degree.
2. A student shall acquire 20 credits from courses prescribed for Honours / Minor degree, in addition to the minimum Academic Requirement for award of regular B.Tech. degree to be eligible for the award of the Honours / Minor degree.

General:
Where the words 'he', 'him', 'his', occur, they imply 'she', 'her', 'hers', also.
The academic regulations should be read as a whole for the purpose of any interpretation.
In the case of any doubt or ambiguity in the interpretation of the above rules, the decision of the Chairman, Academic Council is final.

The College may change or amend the Academic regulations or syllabi at any time as per the directions of the Academic Council and the changes or amendments made shall be applicable to all the students with effect from the dates notified by the College.

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ACADEMIC REGULATIONS
FOR STUDENTS ADMITTED THROUGH LATERAL ENTRY

The duration of the programme for the Degree of Bachelor of Technology for lateral entry students will be three academic years, with two semesters in each year. However, if a student cannot complete within 3 years, he/she can do so by taking more time but not more than 6 years from the year of first admission.

1. Structure of the Programme:

The course of study for lateral entry students shall start with III semester of B.Tech. regular programme.

Semester	Composition		Credits
III	6-7 Theory + 3-4 Labs	Includes Design Thinking & Innovation Programming with Python Non-Credit Mandatory Course-I	**42** Credits
IV	5-7 Theory + 3-4 Labs		
V	6-7 Theory + 3-4 Labs (includes Professional Elective - I, II) Socially relevant project (16 Hrs) Mini Project-I / Intern-I (2 Weeks during summer break between IV and V semester)	Includes AI tools, IoT, Industry Lectures Non-Credit Mandatory Course-II	**41** Credits
VI	7 Theory + 3-4 Labs (Including Professional Elective - III, IV) Skill Based Lab Elective- I, Free Elective-I		
VII	6-7 Theory + 3-4 Labs Professional Elective - V, VI Skill Based Lab Elective -II Open Elective - I Free Elective-II Mini Project-II / Intern-II (3 Weeks during summer break between VI		**37** Credits

	and VII semester)		
VIII	Open Elective - II, III Project / Intern-III	Provision for online electives	
		Total	**120 Credits**

2. Promotion Criteria:

A student shall be promoted from VI to VII semester, if he/she registered at least **83** Credits and pass in courses corresponding to at least **58** credits at the end of VI semester, from III to V semester regular and supplementary examinations and regular examinations of VI semester.

3. Minimum Academic Requirement for the award of degree:

1. A student shall pass in all courses corresponding to **120** credits, secure a pass in all the Non-Credit mandatory courses to be eligible for the award of the B.Tech. degree.
2. A student shall acquire 20 credits from courses prescribed for Honours / Minor degree, in addition to the minimum Academic Requirement for award of regular B.Tech. degree to be eligible for the award of the Honours / Minor degree.

4. All other regulations shall be same as that of the regulations applicable to regular students.

General:

i.   Where the words 'he', 'him', 'his', occur, they imply 'she', 'her', 'hers', also.
ii.   The academic regulations should be read as a whole for the purpose of any interpretation.
iii. In the case of any doubt or ambiguity in the interpretation of the above rules, the decision of the Chairman, Academic Council is final.
iv.   The College may change or amend the Academic regulations or syllabi at any time as per the directions of the Academic Council and the changes or amendments made shall be applicable to all the students with effect from the dates notified by the College.

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TRANSITORY REGULATIONS FOR RE-ADMITTED STUDENTS

1. The student has to continue the course work along with the regular students of the respective semester in which the student gets re-admission.
2. The student has to register for Substitute subjects offered in place of subjects already studied earlier and other Compulsory Subjects as specified by respective BoS, if any.
3. The mode of internal evaluation and end-semester examinations shall be on par with the regular students, i.e., the student has to follow the then mode of internal evaluation and the then question paper model for the end-semester examinations along with the regular students of the respective semester in which the student gets re-admission. The marks secured in the internal and end-semester examinations will be pro-rated in accordance with the regulations under which the student was first admitted.
4. For the subject(s) failed in earlier semesters (before re-admission), the student has to acquire credits from the supplementary examinations as and when conducted. The question paper model shall remain same as the one in which the student first appeared for examination in that subject(s).
5. All other academic requirements shall be in accordance with the regulations under which the student was first admitted.
6. The decision of the Principal is final on any other clarification in this regard.
7. In case of transferred students from other University / College, an equivalent course structure shall be prepared by the BoS of respective department considering the suitable credits already acquired at the previous institution.

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