

# **GAYATRI VIDYA PARISHAD COLLEGE OF ENGINEERING**

**(AUTONOMOUS)**

MADHURAWADA , VISAKHAPATNAM-530048

**AFFILIATED TO JNTU-KAKINADA**



**COLLEGE OF ENGINEERING  
(AUTONOMOUS)**

**REGULATIONS COURSE STRUCTURE AND  
SYLLABI OF B.TECH. PROGRAMME  
(UNDER AUTONOMOUS STATUS )**

**FOR 2014-2015 ADMITTED BATCH**

ALL BRANCHES ARE ACCREDITED BY NBA OF AICTE  
ACCREDITED BY NAAC WITH 'A' GRADE WITH A CGPA OF 3.47/4.00



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# *Vision*

*To evolve into and sustain as a Centre of Excellence in Technological Education and Research with a holistic approach.*

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## Mission

*To produce high quality engineering graduates with the requisite theoretical and practical knowledge and social awareness to be able to contribute effectively to the progress of the society through their chosen field of endeavour.*

*To undertake Research & Development, and extension activities in the fields of Science and Engineering in areas of relevance for immediate application as well as for strengthening or establishing fundamental knowledge.*

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## **FOREWORD**

*It gives immense satisfaction and strength, as two batches successfully completed the B.Tech. programme under the autonomous system. Based on the experiences and insight from the past performance, to catch up the changing trends in higher education, and to make the degree, to be more in tune with the global level requirements, a system of Outcome Based Education is introduced into the curriculum from 2013-14 admitted batch. The new approach is more focused towards learner centric. The expected outcomes are clearly stated, and levels of attainment are measured at each stage.*

*The experiences of the running of the new system for one year are taken and fine tuning of the system is done in the meetings of the Boards of studies and Academic Council held recently.*

*I take this opportunity to thank all the members of the Academic Council and the members of the respective Boards of Studies, representatives from the industry, who shared their valuable experiences to further sharpen the focus of the entire programme.*

*I thank the authorities of the affiliating University, JNTU, Kakinada, for their constant support, encouragement and guidance in successful running of the autonomous system at each step.*

*I thank the parents, who are giving constant moral support, and the students who are keeping the college flag high at every opportunity.*

*Finally I thank all the teaching and non-teaching staff for their hard work and dedication with single point focus towards the continuous betterment of the system.*

*Principal*



## B.TECH. ACADEMIC REGULATIONS

### R 1.0 Qualification for Admission and duration:

- R1.1 The selection for category A and B seats shall be as per Govt. of Andhra Pradesh rules.
- R1.2 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 within 4 years, he can do so by taking more time but not more than 8 years.
- R1.3 The duration of each semester will normally be 20 weeks with 5 days a week. A working day shall have 7 periods each of 50 minutes.

### R 2.0 Structure of the Programme:

Semester	No. of Courses per semester Theory + Lab	Credits
I	5 + 4 / 5 + 3 + Professional ethics	45
II	5+3+Professional ethics / 5 + 4	
III	6 + 2	44
IV	6 + 2	
V	6 + 2 / 6 + 2 + IPR	46
VI	4 + 2* + 2 + IPR / 4 + 2* + 2	
VII	Industry oriented Mini Project \$ 5 + 1* + 2	45
VIII	1 + 1*+ 1#+ Seminar +Comprehensive viva + Project	
<b>Total:</b>		<b>180 credits</b>

\*Core Electives, # Open Elective, \$ Summer Programme to be carried out after VI semester and assessed in VII semester

- i. The curriculum in the first and second semesters shall be common for all the B.Tech. programmes except for department specific courses.
- ii. Each course is normally assigned a certain number of credits as follows:
  - 3 credits for 4 lecture periods per week and no credits for tutorials.
  - 2 credits for 3 laboratory periods per week.
  - 2 credits for Industry oriented Mini Project.
  - 2 credits for Seminar with 3 periods per week.
  - 2 credits for comprehensive viva-voce.
  - 8 credits for project work.
- iii. Participation in Social Service for a minimum of 32 hours is compulsory.

Participation in extra/co-curricular activities like Sports, Cultural and Literary activities for a minimum of 32 hours is also compulsory.

The activities are monitored and grades are awarded as given below:

EXCELLENT

GOOD

SATISFACTORY

A student shall obtain a minimum of satisfactory grade in both social service and extra / co-curricular activities during the course of study to be eligible for the award of the degree.

### **R 3.0 Method of Evaluation:**

The performance of a student in each semester shall be evaluated subject-wise with a maximum of 100 marks each for theory and practical/drawing subjects. In addition, Industry oriented mini-project, Seminar, Comprehensive viva-voce and Project work shall be evaluated for 50, 50,100 and 200 marks, respectively.



### **R 3.1 Theory:**

For all lecture based theory courses, the assessment shall be for 30 marks through internal evaluation and 70 marks through external end-semester examination of three hours duration.

#### **R 3.1 a. Internal evaluation:**

The 30 internal marks are awarded as follows

Two tests 20 marks

Four assessments by atleast any two of the following methods 10 marks

Assignment/ Quiz/Term paper/ Tutorial /Surprise test/Open book test/ Seminar/ Case study/Lab activity/projects etc. as notified by the teacher at the beginning of the semester and distributed evenly over the entire semester.

The internal marks for tests (20 marks) shall be computed as, the weighted average of the two tests at 2:1 with the higher score carrying a weightage of 2.

The remaining 10 internal marks shall be computed as the average of marks obtained in the four assessments.

#### **R 3.1 b. External evaluation:**

The question paper shall be set externally and valued both internally and externally. A chief examiner appointed for each subject shall monitor the valuation process.

If the difference between the first and second valuations is less than or equal to 10 marks, the better of the two valuations shall be awarded.

If the difference between the first and second valuation is more than 10 marks, the chief examiner shall value the script. The marks given by the chief examiner shall be final for award.

### **R 3.2 Practical / Drawing:**

Practical / drawing shall be evaluated for 100 marks, out of which 50 marks are for external examination and 50 marks are for internal evaluation.

The 50 internal marks are distributed as 25 marks for day-to-day work in two cycles and 25 marks for internal examination. The internal examination shall be conducted by the teacher concerned and another faculty member of the same department once for each cycle of instruction period and average of the two shall be considered for award of marks. A minimum of 50% of maximum marks shall be obtained to earn the corresponding credits.

10 out of 12 to 16 experiments/exercises recommended are to be completed in a semester.

### **R 3.3 Industry Oriented Mini Project:**

The industry oriented mini project shall be carried out during the summer break for a minimum of 4 weeks after the VI Semester and completed before the start of the VII semester. A report has to be submitted at the beginning of the VII semester for assessment by an internal evaluation committee comprising Head of the Department and two faculty of the department including the project Supervisor for 50 marks. A minimum of 50% of maximum marks shall be obtained to earn the corresponding credits.

### **R 3.4 Seminar:**

The seminar shall have two components, one chosen by the student from the course-work without repetition, from the topics taught / studied, and approved by the faculty advisor. The other component is suggested by the advisor and can be a reproduction of the concept in any standard research paper or an extension of concept from earlier course work. A hard copy of the information on seminar topic in the form of a report is to be submitted for evaluation along with presentation. The presentation of the seminar topics shall be made before a committee comprising the Head, seminar advisor and a senior faculty of the department. The two components of the seminar are distributed between two halves of the semester and are evaluated for 50 marks each. The average of the two components shall be taken as the final score. A minimum of 50% of maximum marks shall be obtained to earn the corresponding credits.

### **R.3.5 Comprehensive viva-voce:**

The comprehensive viva-voce will be conducted by a committee comprising Head of the Department, Senior faculty members of the respective department. This is aimed at assessing the student's understanding of various subjects studied during the entire programme of four years. The Comprehensive viva-voce shall be evaluated for 100 marks during VIII semester. A minimum of 50% of maximum marks shall be obtained to earn the corresponding credits.

### **R 4.0 Project:**

The project work shall be spread over the entire VIII semester and of somewhat innovative in nature, with research / industry orientation. A project batch shall comprise of not more than four students. A mid-term evaluation is conducted on the progress by Head of the Department and the supervisor for 40 marks. On completion of the project, a second evaluation is conducted before the report is submitted for another 40 marks. The final evaluation shall be based on the report submitted and a viva-voce examination for 120 marks by an external examiner.

### **R 5.0 Attendance Requirements:**

It is desirable for a candidate to put up 100% attendance in the class in all the subjects. However, a candidate shall be permitted to appear for the end semester examination provided he records a minimum of 75% attendance for each subject in any semester. However, condonation for shortage of attendance may be given on Medical grounds, if a certificate to the extent is submitted to the HOD when the candidate first returns to the classes. Certificates submitted afterwards shall not be entertained on any count. A condonation fee as fixed by the college for those who put in attendance between 65 and 74 per cent shall be charged before the student is permitted to the end examination.

Attendance may also be condoned as per the State Government rules for those who participate in prestigious sports, co- and extra-curricular activities provided their attendance is in the minimum prescribed limits for the purpose and recommended by the concerned authority.

Attendance will be indicated in the marks memo by a letter code as follows:

### **Grading of Attendance:**

90% and above	A	(Very Good)
75% to 89%	B	(Good)
65% to 74%	C	(Satisfactory)
Below 65%	D	(Detained)

A student who gets less than 65% (D Grade) attendance in a maximum of two credit courses in any semester shall not be permitted to take the end semester examination in which he/she falls short.

A student who gets less than 65% (D Grade) attendance in non-credit mandatory courses shall not be permitted to take the end semester examination in which he/she falls short.

His/her registration for those subjects will be treated as cancelled. The student should re-register and repeat those subjects as and when offered next.

### **R 5.1:**

- i. A student shall acquire at least C grade in attendance to be eligible to appear for the end-semester examination in the concerned subject.
- ii. If a student gets D grade in more than two credit courses in any semester he/she shall be detained and has to repeat the entire semester.

### **R 6.0 Minimum Academic Requirements:**

The following academic requirements shall be met along with the attendance requirements mentioned above to be eligible for the award of the B.Tech. degree.

- i. A student shall be deemed to have satisfied the minimum academic requirements and earned the credits allotted to each theory, if he/she secures not less than 25 marks in external end examination, and a minimum of 40 marks on the aggregate of internal evaluation and external examination taken together.

- ii. In case of practical / drawing / project, a student shall be deemed to have satisfied the minimum academic requirements and earned the credits allotted to each of them if the student secures a minimum of 50% in the end examination and not less than 50% marks on the aggregate in the internal evaluation and external end examination taken together.
- iii. For the non-credit mandatory courses viz., Professional Ethics, Environmental studies and Intellectual Property Rights and Patents, a student shall satisfy minimum attendance requirements on par with the other theory courses and secure a pass in the end semester examinations for which the evaluation shall be totally internal.
- iv. A student shall be promoted from IV to V semester, if he / she acquires a minimum of 62 out of 89 credits (70%) up to the end of IV Semester (from I, II, III semesters regular and supplementary examinations & IV semester regular examinations).
- v. A student shall be promoted from VI to VII semester, only if he / she fulfills the academic requirements of acquiring a minimum of 94 credits out of 135 credits (70%) up to the end of VI semester (from I to V semesters regular and supplementary examinations & VI semester regular examinations).
- vi. Student shall register, put up minimum attendance in all courses including non-credit mandatory courses.
- vii. A student shall earn all the 180 credits and secure a pass in non-credit mandatory courses to be eligible for the award of the degree.
- viii. Marks obtained only from the credit courses shall be considered for the award of Percentage / Class / Division.
- ix. A student who fails to earn 180 credits or secure a pass in non-credit mandatory courses within 8 academic years from the year of his / her admission shall forfeit his / her seat and his / her admission stands cancelled.

### **R 7.0 Make-up program for defaulters:**

A make-up programme in subsequent semesters will be offered outside

the regular time table for the students who got detained due to shortage of attendance in not more than two credit courses and one non-credit mandatory course, if any. However, this facility shall not be extended to those candidates who are detained for want of attendance as per regulations R 5.1.(ii)

- i. Make-up programme shall be announced at the beginning of every semester. The announcement of subjects offered for the make-up programme is at the discretion of the Principal. A student shall have to register within the time stipulated in the announcement by paying the prescribed fee.
- ii. The number of total contact hours and method of evaluation for any make-up program shall be the same as those for a regular semester.
- iii. It is desirable for a candidate to put up 100% attendance in all the subjects registered for the make-up programme. However, 25% concession in attendance may be permitted at the discretion of the principal based on the merits of the individual case under extraneous circumstances with proper evidence. No further condonation of attendance on par with the regular semester shall be permitted.
- iv. If a candidate is failed to satisfy the attendance requirement in a course registered during make-up programme, then he has to repeat the course in the subsequent make-up programme when offered next.
- v. The method of internal evaluation in the case of make-up programme is same as for the regular B.Tech. programme.
- vi. For the courses registered in the make-up programme, the internal marks secured earlier are nullified and internal marks from the latest make-up programme shall be final.
- vii. The credits for the courses registered during the make-up programme shall be earned from the end semester examinations following the corresponding regular semester.
- viii. A pass in case of non-credit mandatory courses, for the courses registered during the make-up programme shall be secured from

the end semester examinations following the corresponding regular semester.

- ix. Attendance and completion of courses during the make-up programme shall be suitably reflected in the consolidated marks memo.

No student can register for more than two credit courses and one non-credit mandatory course for a make-up programme.

Withdrawal from a make-up program after registration will no entitle for any refund of fees.

### **R 8.0 Supplementary examinations:**

Supplementary examinations for the odd semester shall be conducted with the regular examinations of even semester and vice versa, for those who appeared and failed in regular examinations.

### **R 9.0 Class/Division:**

70% and above	:	First Class with distinction
60% and above, but less than 70%	:	First Class
50% and above, but less than 60%	:	Second Class.
40% and above, but less than 50%	:	Pass Class
Less than 40%	:	Fail

### **R 10.0 General:**

- i. Where the words 'he', 'him', 'his', occur, they imply 'she', 'her', 'hers', also.
- ii. The academic regulation 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 from time to time and the changes or amendments made shall be applicable to all the students with effect from the dates notified by the college.

**REGULATIONS FOR B.TECH.  
(LATERAL ENTRY) STUDENTS  
ADMITTED INTO III SEMESTER  
(UNDER AUTONOMOUS STREAM)**

**RL 1.0**

- 1.1 The selection and admission process shall be as per Government of Andhra Pradesh rules through ECET.
- 1.2 A student admitted to B.Tech. through lateral entry scheme joins the College in the III Semester of the respective 8-Semester program. The duration of the programme is 3 years / 6 semesters. However, if a student can not complete within 3 years, he can do so by taking more time but not more than 6 years / 12 semesters.
- 1.3 Participation in Social Service for a minimum of 24 hours is compulsory.

Participation in extra/co-curricular activities like Sports, Cultural and Literary activities for a minimum of 24 hours is also compulsory.

The activities are monitored and grades are awarded as given below:

EXCELLENT

GOOD

SATISFACTORY

A student shall obtain a minimum of satisfactory grade in both social service and extra / co-curricular activities during the course of study to be eligible for the award of the degree.

- RL 2.0** The attendance requirements shall be same as those admitted into four year regular B.Tech. programme,

**RL 3.0 Minimum Academic Requirements:**

- i. For the non-credit mandatory courses, Environmental studies and Intellectual Property Rights and Patents, a student shall satisfy minimum attendance requirements on par with the



- other theory courses and secure a pass in the end semester examinations for which the evaluation shall be totally internal.
- ii. A student shall be promoted from VI to VII semester, only if he / she fulfills the academic requirements of a minimum of 63 credits out of 90 credits (70%), upto the end of VI semester (from III to V semesters regular and supplementary examinations & VI semester regular examinations).
  - iii. To be eligible for the award of B.Tech. degree, a student shall register and satisfy the attendance requirements for all the courses including non-credit mandatory courses, and shall earn 135 credits, and secure a pass in the non-credit mandatory courses.
  - iv. A student who fails to earn 135 credits, and secure a pass in non-credit mandatory courses within six academic years from the year of his / her admission shall forfeit his / her seat and his / her admission stands cancelled.

**RL 4.0** All other regulations are same as those applicable to the students admitted into B.Tech. I-Semester.

**RL 5.0** Subjects are identified as exempted / compulsory / pre-requisites by the respective Chairman, Boards of Studies and recommended for study to make-up for any gaps in the curriculum for further study.

The student has to register for compulsory courses, attend the classes and qualify in examination.

The student has to register for the pre-requisite courses, attend the classes for which the evaluation is totally internal.

Compulsory and pre-requisite courses do not carry any credits.

**RL 6.0** Marks obtained from the credit courses shall be considered for the award of class / division.

**RL7.0 General:**

- i. Where the words ‘he’, ‘him’, ‘his’, occur, they imply ‘she’, ‘her’, ‘hers’, also.

- ii. The academic regulation 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 from time to time and the changes or amendments made shall be applicable to all the students with effect from the dates notified by the college.



## REVISED TRANSITORY REGULATIONS FOR STUDENTS SEEKING RE-ADMISSION INTO 2013 REGULATIONS

(detained due to shortage of attendance / lack of credits in earlier Regulations)

### RT 1.0

- 1.1 The student has to continue the course work along with the regular students of the respective semester in which the student gets re-admission.
- 1.2 Substitute / compulsory subjects shall be offered in place of subjects that are already studied earlier. The student has to register for those courses.
- 1.3 The mode of internal evaluation (i.e., in-course assessments) and external evaluation (i.e., 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 external evaluation will be pro-rated in accordance with the regulations under which the student was first admitted.
- 1.4 For the subjects studied under earlier regulations but failed, the student has to appear, pass and acquire credits from the supplementary examinations as and when conducted. The question paper model shall remain same as that the student appeared under earlier regulations.
- 1.5 The promotion criteria based on attendance as well as credits shall be in accordance with the regulations under which the student was first admitted.
- 1.6 To be eligible for the award of the degree, the student shall complete the attendance requirements and appear for the end semester examination in all the courses for 224 credits, including the substitute/compulsory courses as prescribed in

the transitory course structure and shall acquire atleast 216 credits. The exemption of 8 credits is only from the four electives, namely, Elective-I, II, III, and IV.

- 1.7 All other academic requirements shall be in accordance with the regulations under which the student was first admitted.
- 1.8 The decision by the Principal is final on any other clarification in this regard.

### **RT 2.0 General:**

- 2.1 Where the words ‘he’, ‘him’, ‘his’, occur, they imply ‘she’, ‘her’, ‘hers’, also.
- 2.2 The academic regulation should be read as a whole for the purpose of any interpretation.
- 2.3 In the case of any doubt or ambiguity in the interpretation of the above rules, the decision of the Chairman, Academic Council is final.
- 2.4 The college may change or amend the academic regulations or syllabi from time to time and the changes or amendments made shall be applicable to all the students with effect from the dates notified by the college.

