

ACADEMIC REGULATIONS COURSE STRUCTURE AND DETAILED SYLLABUS

**B.TECH. FOUR YEAR DEGREE COURSE
(Applicable for the batches admitted from 2010-11)**



**LAKIREDDY BALI REDDY COLLEGE OF ENGINEERING
L.B.Reddy Nagar :: MYLAVARAM – 521 230 :: Krishna District
Andhra Pradesh State**

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1. INTRODUCTION

Academic Programmes of the institute are governed by rules and regulations approved by the Academic Council, which is the highest Academic body of the Institute. These academic rules and regulations are applicable to the students admitted during academic year 2010-11 into first year of four year undergraduate programme offered by the college leading to Bachelor of Technology (B.Tech) degree in the disciplines viz., Computer Science and Engineering, Electronics and Communication Engineering, Electrical and Electronics Engineering, Electronics and Instrumentation Engineering, Information Technology, Mechanical Engineering .

- 1.1 Lakireddy Balireddy College of Engineering, Mylavaram, an autonomous institution, follows Semester pattern for all four years of its undergraduate B.Tech programmes with internal and external evaluation.
- 1.2 Semester Pattern : Each academic year shall be divided into two semesters, each of 20 week duration, including instruction, evaluation, etc. Each semester consists of a minimum of 90 instruction days with at least 35 to 40 contact periods per week.

2. PROGRAMMES OFFERED (UNDER GRADUATE)

Presently, the college is offering Under Graduate programmes in the following disciplines:

- Aero Space Engineering (AE)
- Computer Science and Engineering (CS)
- Electronics and communication Engineering (EC)
- Electrical and Electronics Engineering (EE)
- Electronics and instrumentation Engineering (EI)
- Information Technology (IT)
- Mechanical Engineering (ME)

3. ELIGIBILITY CRITERIA FOR ADMISSION

- * The eligibility criteria for admission into 1st year B.Tech programme shall be as mentioned below:
- Admissions in each programme in the Institution are classified into CATEGORY A (70% of intake) and CATEGORY B (30% of intake).

3.1 Category – A Seats:

- The candidate shall be of Indian National
- The candidate should have completed 16 years of age as on 31st December of the Academic year for which the admissions are being conducted.
- The candidate should have passed the qualifying examination (10+2) or equivalent on the date of his/her counseling for admission and secured the rank at the Common Entrance Test conducted by the State and also satisfy other conditions laid down in the G.O.s.
- The candidate should satisfy Local/Non-Local status requirement as laid down in the Andhra Pradesh Educational Institutions (Regulation of Admissions) Order, 1974 as subsequently amended.

3.2 Category - B Seats:

- The candidate shall be of Indian National or a Non-Resident Indian.
- The candidate should have completed 16 years of age as on 31st December of the Academic year for which the admissions are being conducted.
- Category B Seats shall be thrown open for admission to all the eligible candidates on the basis of merit from within the state, other states, Union territories and NRI/NRI sponsored candidates
- Out of the 30% quota of Category B Seats, seats not exceeding 15% of the sanctioned intake in each course shall be filled on merit basis with NRI/NRI sponsored candidates (vide G.O.Ms.140 HE Dept Dt:31.07.08), who have passed qualifying examination with not less than 50% of aggregate marks or Cumulative Grade Point Average (CGPA) equivalent to 5 on a scale of 10.
- The remaining 15% of seats and the leftover seats after filling NRI/NRI sponsored candidates shall be filled with candidates from within state as per the merit order (EAMCET/AIEEE) interpreted by a Division Bench of Hon'ble High Court of AP in W.P. No.17385/2009 dt.:18-09-2009, which is put on website. Only thereafter if any still remain unfilled the colleges can fall back upon the option of filling up such vacant seats with candidates who have qualified at the qualifying examination.

3.3 Category: Lateral Entry

- The candidates should have passed the qualifying exam.(B.Sc. graduation & Diploma holders) shall be admitted into the II nd year Ist semester directly, based on the rank secured by the candidate at Engineering Common Entrance Test (ECET (FDH)) in accordance with the instructions received from the Convener, ECET and Government of Andhra Pradesh.
- The candidate shall also satisfy any other eligibility requirements stipulated by the JNT University and / or the Government of Andhra Pradesh from time to time.

4. AWARD OF B.TECH DEGREE

A student will be declared eligible for the award of the B.Tech. by JNTUK Degree if he/she fulfills the following academic regulations:

- (i) Pursued a course of study for not less than four academic years and not more than eight academic years.
- (ii) Registered for 220 credits and secured 212 credits with specified compulsory subjects

COMPULSORY SUBJECTS

S.No.	Specified Particulars
1.	All the first year subjects
2.	All Practical Subjects
3.	Internship
4.	Comprehensive viva-voce
5.	Seminar
6.	Project Work
7.	Mini Project

5. DURATION OF THE PROGRAMME

Students, who fail to fulfill all the academic requirements for the award of the degree within minimum of eight academic years shall forfeit their seat in B.Tech course.

6. SEMESTER –WISE DISTRIBUTION OF CREDITS

Table .1 Semester-wise Credits Distribution

SEMESTER	CSE	IT	ECE	EIE	EEE	ME
I	24	24	24	24	24	24
II	27	27	27	27	27	27
III	28	28	29	29	29	28
IV	30	30	30	30	30	30
V	30	29	31	31	31	28
VI	29	30	28	28	28	31
VII	32	32	31	31	31	32
VII	20	20	20	20	20	20
TOTAL	220	220	220	220	220	220

- (i) There shall be an internship of four weeks duration (summer vacation) in an industry/ top academic institutes or R & D centers of excellence at the end of the VI semester.
- (ii) The internships shall be supervised by a competent faculty member of the institute who in turn shall be in touch with the respective division head of the industry. The internships are compulsory and are credit based.
- (ii) All the seminars and mini projects are credit based

7. DISTRIBUTION AND WEIGHTAGE OF MARKS

- (i) In each semester the course of study consists of 5 theory subjects + 3 laboratories or 6 theory subjects + 2 laboratories. However, in the VIII semester there shall be only 3 theory subjects in addition to the project work and comprehensive viva-voce.
- (ii) The performance of a student in each semester shall be evaluated subject wise with a maximum of 100 marks for theory and 100 marks for practical subject. In addition, Industry oriented mini-project, seminar, project work and comprehensive viva shall be evaluated for 50, 50, 200 and 100 marks respectively.
- (iii) For each theory subject the distribution shall be 25 (20+5 marks for attendance) marks for Internal Evaluation and 75 marks for the end semester examination.
- (iv) For each theory subject, during each semester there shall be 2 tests, for a duration of 90 minutes. One descriptive test to be conducted in 1 – 2 units and the second test be conducted in 3 – 5 units thereby. However, 75% weightage for the best and 25% for the other first test shall be considered for awarding sessional marks
- (v) The question paper for internal examinations shall contain 3 questions. There shall be internal choice in each question.
- (vi) For practical subjects there shall be a continuous evaluation during the semester for 25 sessional marks (10 marks for day-to-day work, 10 marks for Internal test and 5 marks for attendance) and 75 end examination marks. The end examination shall be conducted by the teacher concerned and another external member.
- (vii) For the subject having design and / or drawing (such as Engineering Graphics, machine Drawing), and estimation, the distribution shall be 25 marks for internal evaluation (10 marks for day-to-day work, 10 marks for Internal tests and 5 marks for attendance) and 75 marks for end examination. There shall be one internal test in a Semester.
- (viii) All project works/ internships/mini projects shall be evaluated by the committee. The committee consists of, head of the department, the supervisor of mini project and a senior faculty member of the department along with duly approved/recognized external examiner.
- (ix) There shall be seminars in the III semester and V semester and Term paper in VII semester. For the seminar and Term Paper, the student shall collect the information on a specialized topic and prepare a technical report, showing his understanding over the topic, and submit to the department, which shall be evaluated by the Department committee consisting of Head of the department, seminar supervisor and a senior faculty member. The seminar report shall be evaluated for 50 marks.
- (x) Out of a total 200 marks for the project work, 60 marks shall be for Internal Evaluation and 140 marks for the End Semester Examination. The internal Evaluation shall be on the basis of two seminars given by each student on the topic of his project. The End Semester Evaluation (viva-voce) shall be conducted by the same committee appointed for internship. The topics for

mini project, seminar and project work shall be different from each other. The topic for Term Paper and Project Work shall be preferably same. The evaluation of project work shall be conducted at the end of the VIII Semester.

- (xi) The comprehensive Viva-Voce shall be conducted for 100 marks, both at the end of VI and VIII Semesters. The comprehensive viva shall be evaluated in the topics covering the core aspects of the subject in which the candidate is likely to graduate.

8. ATTENDANCE REGULATIONS AND CONDONATION

- (i) A student shall be eligible to appear for end semester examinations, if acquired a minimum of 75% of attendance in aggregate of all the subjects.
- (ii) Condonation of shortage of attendance in aggregate up to 10% on medical grounds (65% and above and below 75%) in each semester may be granted by the College Academic Committee. However, the subject of granting is purely at the discretion of the College Academic Committee or competent authority.
- (iii) A Student will not be promoted to the next semester unless he satisfies the attendance requirement of the present semester as applicable. They may seek re-admission for that semester as and when offered next.
- (iv) Due weightage in each of the subjects shall be given to the attendance. Marks not exceeding 5 shall be given to all such candidates who satisfies the following criteria

% of attendance	Marks
>= 90	5
85 to <90	4
80 to < 85	3
>75 to < 80	2
=75	1

- (v) Shortage of Attendance below 65% in aggregate shall in no case be condoned.
- (vi) Students whose shortage of attendance is not condoned in any semester are not eligible to take their end examination of that particular semester and their registration for examination shall stands cancelled.
- (vii) A stipulated fee shall be payable towards condonation of shortage of attendance.
- (viii) Attendance may also be condoned for those who participate in prestigious sports, co- and extracurricular activities provided their attendance is in the minimum prescribed range for the purpose and recommended by the concerned authority.

9. MINIMUM ACADEMIC REQUIREMENTS

The following academic requirements have to be satisfied in addition to the attendance requirements mentioned in item no.8.

- (i) A student shall be deemed to have satisfied the minimum academic requirements and earned the credits allotted to each theory or practical design or drawing subject or project if he/she secures not less than a minimum of 40% of marks exclusively at the end semester examinations in each of the subjects in which candidate had appeared. However, the candidate should have secured minimum of 40% marks in both external and internal components put together to be eligible for passing in the subject.
- (ii) A student will be promoted to next semester, if he satisfies the minimum attendance requirement.
- (iii) Only such candidates who had completed their II Semester to III Semester of study and had obtained at least 39 credits (50% of the total credits up to III Semester) are eligible to study V Semester.
- (iv) To be eligible to study VII Semester, the candidate should have secured a minimum of 68 credits (50% of the total credits up to V Semester).
- (v) There shall be supplementary examinations along with the regular even semester examinations enabling the students to give a fair chance to appear in the subject if failed any.
- (vi) However, an advanced supplementary examination shall be conducted for all such students who had failed in only one subject at the VII Semester of their study. Such an examination is applicable only for those students pursuing VIII semester.
- (vii) Students who fail to earn 212 credits as indicated in the course structure including compulsory subjects as indicated in table – I within eight academic years from the year of their admission shall forfeit their seat in B.Tech course and their admission shall stand cancelled.

10. COURSE PATTERN

- (i) The entire course of study is of four academic years. Each academic year shall have two semesters
- (ii) A Student eligible to appear for the end examination in a subject, but absent at it or has failed in the end examination may appear for that subject as and when conducted.
- (iii) All admitted students' are to study 4 electives during their course of four year study at the institute. The following shall be the programme of study of electives.

Year	Semester	No. of electives
3	2	1
4	1	1
4	2	2

- (iv) During the VIII semester, it is mandatory that departments offer 3 theory subjects and a comprehensive viva (covering all core subjects of engg) along with project work
- (v) When a student is detained due to lack of credits / shortage of attendance, he may be re-admitted when the semester is offered after fulfillment of academic regulations. Whereas the academic regulations hold good with the regulations he/she first admitted.

11. AWARD OF GRADE

After a student has satisfied the requirement prescribed for the award of B.Tech. Degree, he/she shall be placed in one of the following four grades. The award of the degree is based on CGPA on a grade point of scale 4. The grade points are awarded as follows:

CGPA	Award Division
Above 2.5	First Class with Distinction
≥ 2 and < 2.5	First division
> 1.5 and < 2	Second division
≥ 1 and < 1.5	Pass division
< 1.0	Fail

Based on the performance of the candidate, the following shall be the criteria for the award of letter grades at the end of each semester in the subjects in which the candidate appeared for the examination

Percentage of Marks Scored	Letter Grades	Grade points
≥ 90	S	4.00
≥ 85 to < 90	A ⁺	3.67
≥ 80 and < 85	A	3.33
≥ 75 and < 80	B ⁺	3.00
≥ 70 and < 75	B	2.67
≥ 65 and < 70	C ⁺	2.33
≥ 60 and < 65	C	2.00
≥ 55 and < 60	D ⁺	1.67
≥ 50 and < 55	D	1.33
≥ 40 and < 50	E	1.00
< 40	F	0

11.1 Calculation of Grade Points Average (GPA)* for semester

The performance of each student at the end of the each semester is indicated in terms of GPA. The GPA is calculated as below:

$$GPA = \frac{\sum(CR \times GP)}{\sum CR}$$

Where CR= Credits of a course

GP = Grade points awarded for a course

* GPA is calculated for the candidates who passed all the courses in that year/semester.

11.2 Calculation of Cumulative Grade Point Average (CGPA) for Entire Programme.

The CGPA is calculated as below:

$$CGPA = \frac{\sum(CR \times GP)}{\sum CR}$$

(for entire programme)

Where CR= Credits of a course

GP = Grade points awarded for a course

12. MINIMUM INSTRUCTION DAYS

The minimum instruction for each semester shall be 90 instruction days excluding examination days.

13. GENERAL

- (a) Where the words "he" "him" "his", occur in the regulations, they include "she", "her".
- (b) The academic regulation should be read as a whole for the purpose of any interpretation.
- (c) In the case of any doubt or ambiguity in the interpretation of the above rules, the decision of the Director is final.
- (d) The Institute may change or amend the academic regulations or syllabi at any time duly approved by Academic council and the changes or amendments made shall be applicable to all the students with effect from the dates notified by the Institute.

14. CHANGE OF BRANCH

There shall be no branch transfers after the completion of admission process.

15. TRANSITORY REGULATIONS

A candidate, who is detained or discontinued in the semester, on readmission shall be required to do all the courses in the curriculum prescribed for such batch of students in which the student joins subsequently. However, exemption will be given to those candidates who have already passed in such courses, which he/she had passed in the earlier semester(s) he/she was originally admitted into.

15.1 A student who is following the JNTU, Kakinada curriculum, detained due to lack of academics/attendance at the end of the first semester of second year, shall join the autonomous batch of III Semester. Such students will study all the courses prescribed for that batch, in which the student joins. The first year marks shall not be converted in to course credits. However, the student has to clear all his first year backlog subjects by appearing the supplementary examinations, conducted by JNTU, Kakinada and courses prescribed in Autonomous stream for the award of Degree. The class will be awarded based on the academic performance of a student. Such candidates will be considered on par with lateral entry candidates of autonomous stream and will be governed by the regulations applicable to lateral entry candidates category.

15.2 A student who is following the JNTU, Kakinada curriculum, detained due to lack of academics/attendance at the end of the second semester of second year and also at the subsequent semesters, shall join with the autonomous batch at the appropriate semester. Such candidates shall be required to pass in all the courses in the programme prescribed by concerned BOS for such batch of students, to be eligible for the award of degree. However, exemption will be given in all those courses of the semester(s) of the batch, which the candidate joins now, which he/she had passed earlier. The student has to clear all his backlog subjects by appearing the supplementary examinations, conducted by JNTU, Kakinada and College(Autonomous stream) for the award of Degree. The class will be awarded based on the academic performance of a student in the autonomous Pattern.

16. COURSE CODE AND COURSE NUMBERING SCHEME

Course Numbers are denoted by six digit unique alpha numeric characters. First two digits are described in Table 2.

First Two Digits	Name of the Department
BT	First and Second semester
CS	Computer Science and Engineering Department
EC	Electronics & Communication Engineering Department
EE	Electrical & Electronics Engineering Department
EI	Electronics and Instrumentation Engineering Department
IT	Information Technology Department
ME	Mechanical Engineering Department

Table 2 : First and second digits description

Third digit represents semester of offering as mentioned in Table No. 3. **Fourth digit** represents the type description (Theory/Lab.)of the course.

THIRD DIGIT	DESCRIPTION
1	First Semester
2	Second Semester
3	Third Semester
4	Fourth Semester
5	Fifth Semester
6	Sixth Semester
7	Seventh Semester
8	Eight Semester

Table 3: Third digit description

Fourth digit represents course type, as per Table No. 4

FOURTH DIGIT	DESCRIPTION
0	Theory course
5	Lab course

Table 4 : Course type description

Fifth digit represents course number of the respective semester as described in Figure 1 below.

For example, T195 course, the course is offered in the first semester (1), the course is of theory type (0) and the course number in that semester (5).

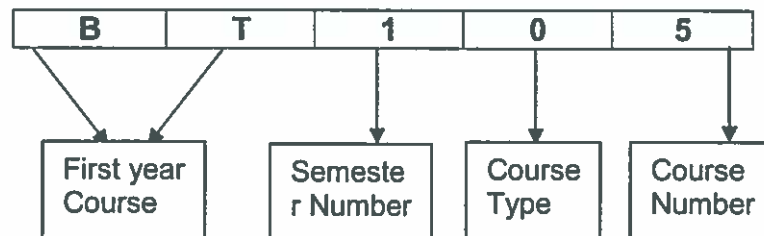


Figure 1 : Course code description for courses

For example, CS 451 course, the course is offered in Computer Science and Engineering Department (CS); offered in the fourth semester (4), the course is of lab type (5) and the course number is (1), as given in figure.2 below.

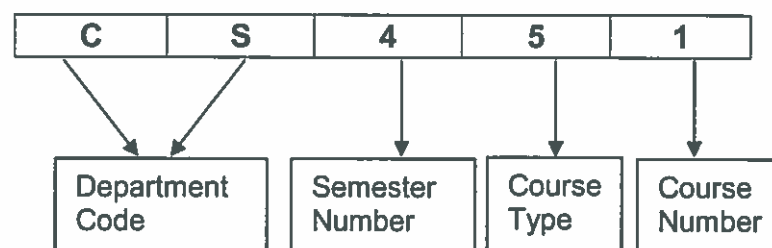


Figure 2 : Course code description for courses

17. MEDIUM OF INSTRUCTION

The medium of instruction and evaluation is English.

18. AMENDMENTS TO REGULATIONS

The Academic council from time to time may revise, amend, or change the regulations, schemes of examinations, and/or syllabi.

19. ACADEMIC REGULATIONS FOR B.TECH (LATERAL ENTRY SCHEME)

- (i) The students have to acquire 161 credits from III Semester to VIII Semester (Total credits of 169) of B.Tech Programme (Regular) for the award of the degree
- (ii) Students, who fail to fulfill the requirement for the award of the degree in 7 consecutive academic years from the year of admission, shall forfeit their seat.
- (iii) The same attendance regulations are to be adopted as that of B.Tech (Regular)

19.1 **Rules For Promotion into Next Higher Class: (VI Semester to VII Semester)**

A student shall be promoted from VI Semester to VII Semester only if he fulfills the academic requirements of 43 credits up to V Semester.

19.2. **Award of Grade in each semester:**

After a student has satisfied the requirement prescribed for the completion of the programme and is eligible for the award of B.Tech. Degree he shall be placed in one of the following four classes:

Based on the performance of every candidate, the following shall be the criteria for the award of grades at the end of each semester

Percentage of Marks Scored	Letter Grades	Grade points
>=90	S	4.00
>=85 to <90	A ⁺	3.67
>=80 and <85	A	3.33
>=75 and <80	B ⁺	3.00
>=70 and <75	B	2.67
>=65 and <70	C ⁺	2.33
>=60 and <65	C	2.00
>=55 and <60	D ⁺	1.67
>=50 and <55	D	1.33
>=40 and <50	E	1.00
<40	F	0

Passed on the aggregate marks secured for the best 161 Credits (Lateral Entry). The aggregate marks secured for 169 Credits. (i.e. III Semester to VIII Semester)

(The marks in internal evaluation and end examination shall be shown separately in the marks memorandum)

20. GRADE CARD

The grade card issued shall contain the following:

- a) The credits for each course offered for that semester
- b) The letter grade obtained in each course
- c) The SGPA/CGPA
- d) Total number of credits earned by the student up to the end of that semester.

21. CONDUCT AND DISCIPLINE

- (a) Students shall conduct themselves within and outside the premises of the Institute in a manner befitting the students of our Institution.
- (b) As per the order of Honorable Supreme Court of India, ragging in any form is considered as a criminal offence and is banned. Any form of ragging will be severely dealt with.
- (c) The following acts of omission and/or commission shall constitute gross violation of the code of conduct and are liable to invoke disciplinary measures with regard to ragging.
 - (i) Lack of courtesy and decorum; indecent behavior anywhere within or outside the campus.
 - (ii) Willful damage or distribution of alcoholic drinks or any kind of narcotics or of fellow students/citizens.
- (d) Possession, consumption or distribution of alcoholic drinks or any kind of narcotics or hallucinogenic drugs.
- (e) Mutilation or unauthorized possession of library books.
- (f) Noisy and unseemly behavior, disturbing studies of fellow students.
- (g) Hacking in computer systems (such as entering into other person's areas without prior permission, manipulation and/or damage of computer hardware and software or any other cyber crime etc.
- (h) Usage of camera cell phones in the campus.
- (i) Plagiarism of any nature.
- (j) Any other act of gross indiscipline as decided by the academic council from time to time.
- (k) Commensurate with the gravity of offense, the punishment may be reprimand, fine, expulsion from the institute / hostel, debarment from a examination, disallowing the use of certain facilities of the Institute, rustication for a specified period or even outright expulsion from the Institute, or even handing over the case to appropriate law enforcement authorities or the judiciary, as required by the circumstances.
- (l) For an offence committed in (i) a hostel (ii) a department or in a class room and (iii) elsewhere, the chief Warden, the Head of the Department and the principal respectively, shall have the authority to reprimand or impose fine.
- (m) Cases of adoption of unfair means and/or any malpractice in an examination shall be reported to the principal for taking appropriate action.
- (n) All cases of serious offence, possibly requiring punishment other than reprimand, shall be reported to the Academic council.

- (o) The Institute Level Standing Disciplinary Action Committee constituted by the academic council, shall be the authority to investigate the details of the offence, and recommend disciplinary action based on the nature and extent of the offence committed.
- (p) The Principal shall deal with any academic problem, which is not covered under these rules and regulations, in consultation with the Programmes Committee in an appropriate manner, and subsequently such actions shall be placed before the academic council for ratification. Any emergency modification of regulation, approved by the academic council earlier, shall be reported to the academic council for ratification.
- (q) **"Grievance and Redressal Committee" (General)** constituted by the principal shall deal with all grievances pertaining to the academic / administrative /disciplinary matters.
- (r) All the students must abide by the code and conduct rules of the college.

22. MALPRACTICES

- (a) The Principal shall refer the cases of malpractices in internal assessment tests and Semester-End Examinations, to a Malpractice Enquiry Committee, constituted by him/her for the purpose. Such committee shall follow the approved scales of punishment. The Principal shall take necessary action, against the erring students basing on the recommendations of the committee.
- (b) Any action on the part of candidate at an examination trying to get undue advantage in the performance at examinations or trying to help another, or derive the same through unfair means is punishable according to the provisions contained hereunder. The involvement of the Staff, who are in charge of conducting examinations, valuing examination papers and preparing/keeping records of documents relating to the examinations in such acts (inclusive of providing incorrect or misleading information) that infringe upon the course of natural justice to one and all concerned at the examination shall be viewed seriously and recommended for award of appropriate punishment after thorough enquiry.

23. AWARD OF RANK

The rank shall be awarded based on the following:

- 1.1 Only such candidates who pass the Final Semester examination at the end of the eighth semester (Final Semester) after admission as regular final year students along with the others in their batch and become eligible for the award of the Degree shall be eligible for the award of rank. Candidates, who lose one or more Semesters of study for any reason whatsoever are not eligible for the award of rank.
- 1.2 Ranks shall be awarded in each branch of study for the top five students appearing for the Regular Examinations.
- 1.3 Award of prizes, scholarships, or any other Honors shall be based on the rank secured by a candidate, consistent with the guidelines of the Donor, wherever applicable.