GONDWANA UNIVERSITY GADCHIROLI

Faculty of Engineering & Technology

DIRECTION NO. 212 OF 2016.

Examinations leading to the Degree of Master of Technology (Two Years Semester Pattern Post Graduate Program with Choice Based Credit System) in the Faculty of Engineering and Technology, Direction, 2016.

Whereas the Ministry of Human Resource Development, Govt. of India, had issued communication vide F. No. 30-4-2000/TS-1, dated 20-12-2001 along with the "Policy Framework for Promotion of Post Graduate Education and Research in Engineering and Technology" to the Chairman, AICTE, New Delhi and the subsequent AICTE acting thereon has prescribed that the postgraduate programs in the Faculty of Engineering and Technology should be of 24 months (Two Years) duration;,

AND

Whereas the UGC, through its notification D. O. No. F-1-1/2015 (CM) dated 08/01/2015 has directed all the Universities to adopt Choice Based Credit System for all its Programs;

AND

Whereas the respective Boards of Studies in the Faculty of Engineering and Technology have approved the schemes of teaching & examinations and syllabi for M Tech Programs in the Faculty of Engineering and Technology, in terms of the aforesaid norms prescribed by the AICTE, New Delhi;

AND

Whereas the Faculty of Engineering and Technology under the Chairmanship of its Dean, in its meeting dated 9/08/2016 has concurred & ratified the recommendations of the concerned Boards of Studies to shift all existing M. Tech courses running under 'Credit Based system' (CBS) to 'Choice Based Credit System' (CBCS) with effect from the academic session 2016-17, on progressive basis;

AND

Whereas admissions to the revised First Semester of M Tech Programs are to be made with effect from the Academic Session 2016-2017;

AND

Whereas the schemes of teaching & examinations of I, II, III and IV Semesters of all the M Tech. Programs, as appended with this Direction, are to be implemented from the academic session 2016-2017;

AND

Whereas the process of framing an Ordinance as required under provisions is likely to take pre requisite time,

Now, therefore, I, Dr. N. V. Kalyankar, Vice-Chancellor, Gondwana University, Gadchiroli in exercise of powers vested in me, under sub section (8) of the Section 14 of the Maharashtra Universities Act, 1994, do hereby issue following Directions :-

1. This Direction shall be called **"Examinations leading to the Degree of Master of Technology (Two Years Semester Pattern Post Graduate Program with 'Choice Based Credit System'), in the Faculty of Engineering and Technology, Direction, 2016."**

2. **This Direction shall come into force with effect from the date of its issuance.**

3. The preliminary definitions for various terms shall be as mentioned below :-

    a. 'Program' means Degree program like M.E., M. Tech. etc.
    b. 'Specialization' means a discipline of the Post Graduate (Nomenclature P for Pg and U for UG) program like Energy Management Systems, CAD/ CAM, Structural Engineering, Electrical Power System, Computer Science Engineering, Electronics Engineering etc.
    c. 'Course' means a Theory or a Practical subject that is to be studies by a student in a Semester.
    d. 'Board' means Board of Studies at the University level, as per provisions of the M.U. Act, 1994.

4. The structure of every M. Tech (PG) program shall be as described below, as far as possible :

    Every Post Graduate Program in the Faculty of Engineering & Technology shall have a Scheme where the Subjects in a particular Course may be categorized as follows :-

    - Foundation Courses (F) : This may include basic courses with relevant syllabus required for that particular specialization like Mathematics and so on.
    - Professional Core Courses (C) : This shall include the core course relevant to a particular specialization and shall be compulsory for all the concerned students.
    - Professional Elective (P) : This will be in the form of POOL of subjects offered to the students so as to suite their CHOICE. This may belong to the same BOARD or the other BOARD, however, in the same FACULTY of Engineering & Technology.
    - Employability Enhancement Courses (E) : This will include Project Work/ Internship/ Seminar/ Professional Practices/ Case Study/ Industrial or Practical Training.

5. The M. Tech. Programs governed by this Direction & the corresponding Board of Studies shall be as detailed in the **Table 1** given below :

Table 1: M. Tech. Programs (CBCS) with Specializations

S. N.	Specializations offered	Affiliate Board of Studies	Appendix
1	CAD/CAM	Mechanical Engineering	A
2	Computer Science and Engineering	Computer Technology/Computer Science and Engineering	B
3	Energy Management Systems	Electrical Engineering	C
4	Heat Power Engineering	Mechanical Engineering	D

5	Structural Engineering and Construction	Civil Engineering	E
6	Electrical Power System	Electrical Engineering	F
7	Electronics & Communication Engineering	Electronics Engineering	G

6. The duration of the course shall be of two academic years consisting of four semesters for which the teaching sessions shall be held during regular college hours and the end semester examination shall be conducted at the end of each semester namely, the first, second, third and fourth semester at such places and on such dates as may be decided by the university.

7. The period of Academic Session shall be such as may be notified by the University.

8. The written End Semester Examination (ESE) of first and third semester shall be held by the Affiliating University in winter & supplementary examination in summer every year. Further the second and fourth semester ESE will be held in summer & the supplementary examination in winter every year.

9. Subject to his compliance with the provisions of this Direction, other relevant ordinances & directions issued by AICTE and state of Maharashtra in force from time to time, the following persons shall be eligible for admission to the examinations, namely :-

   a) M. Tech. (First Semester)

   i) The college shall get the list of admitted students scrutinized and approved from the university, strictly as per sanctioned quota and in accordance with the prescribed rules and regulations.

   ii) Subject to the conditions prescribed for admission to the First Semester M. Tech., the candidate shall be considered eligible if he/she possesses a Bachelors degree or equivalent in the relevant field of engineering with percentage of marks as specified by the apex governing council, AICTE, New Delhi from time to time.

   iii) The discipline wise eligibility for admission to the respective post graduate program shall be as mentioned in **Table 2** given below.

   iv) The candidate should have prosecuted a regular course of study in a college affiliated to the University to conduct the course or a university department/center for not less than one semester in the subjects in which he/she offers for examination.

Table 2: Eligibility Criteria for Admission to M Tech Courses

S. N.	**M Tech Specializations**	**Eligibility Qualification shall be B.E./ B. Tech of the Affiliating University or any other Statutory University recognized equivalent thereto by the UGC/AIU OR AMIE in following Disciplines with minimum 50% marks in qualifying degree**
1	CAD/CAM	Mechanical/ Production/ Industrial Engineering/ Automobile Engineering
2	Computer Science and Engineering	CT/CS/CE/EDT/Electronics/EXTC/Electrical/ E & P/PE/IT/MCA
3	Energy Management Systems	Electrical/ Mechanical/ Power Engineering / Electronics/ Production/ Computer/ Instrumentation/ Industrial Electronics / Power Electronics

4	Heat Power Engineering	Mechanical / Automobile / Power Engineering/ Production
5	Structural Engineering & Construction	Civil Engineering/Structural Engineering/Construction Technology.
6	Electrical Power System	Electrical Engineering / Electronics & Power(E&))/ Electrical & Electrical Engineering (EEE)/ Power Engineering/ Power Electronics Engineering/ Electrical (Electronics & Power) Engineering
7	Electronics & Communication Engineering	Electronics Engineering / Electronics & Telecommunication Engineering / Electronics & Communication Engineering/ EDT

v) M. Tech. (Second Semester) - A student, who after passing the M. Tech (First Semester) examination, has prosecuted a regular course of study in a college affiliated to the university to conduct the course or a university department/ center for not less than one semester in the subjects in which he/she offers for examination.

vi) M. Tech (Third Semester) - A student who has after passing the M. Tech (Second Semester) examination has prosecuted a regular course of study in a college affiliated to the university for conduct of the course or a university department / center for not less than one semester in the subjects in which he/she offers for examination.

vii) M. Tech. (Fourth Semester) - A student who has after passing the M. Tech (Third Semester) examination has prosecuted a regular course of study in a college affiliated to the university to conduct the course or a university department/ center for not less than one semester in the subjects in which he/she offers for examination.

10. The scope of the subject shall be as indicated in the syllabus and may be changed from time to time, to cope up with the changing technologies.

11. The fees for each of the examinations shall be such as may be prescribed by the Affiliating University from time to time.

12. The student shall register for and shall secure all the credits offered in the respective Program.

13. The number of Theory and Laboratory Courses, Internal Assessment, Dissertation and Pre-submission seminar, Viva-Voce if any, maximum marks assigned to each of them, and the minimum marks to pass the examination shall be as indicated in the respective scheme of examination and appended/ revised from time to time with this Direction.

14. The internal and external assessment of the student's performance provides an appropriate evaluation scheme based on their performance in different methodological tests/examinations .

For Theory Courses, continuous assessment shall have various components of evaluation as given below :-

a) **Mid Semester Examination (MSE)** will be carrying 10% weightage and shall be conducted independently by each of the college. The weightage for MSE in each subject shall be a maximum of 10 (ten) marks only. Usually one or two such MSEs should be conducted for the given theory course.
b) **Internal Evaluation (IE)** will be carrying 20% weightage and shall be monitored based on following parameters. The weightage for IE in each subject shall be limited to maximum of 20 (twenty) marks only. It is broken further as given below :-

Response in classes (CR) -	05 marks
Attendance -	05 marks
Assignments/Tutorials -	10 marks

These two components i.e. MSE and IE put together will form the internal assessment component carrying a weightage subject to a maximum of 30 (thirty) marks only.

c) **End Semester Examination (ESE)** carrying 70% weightage shall be conducted for each of the theory course/subject by the institute through Affiliating University, as per its Regulations/Direction subject to maximum marks as specified in the designed curriculum.

Pattern of End Semester Examination (Theory Course) –

i) The ESE shall be conducted by the Affiliating University, as per the schedule notified by the Board of Examinations.

ii) The pattern of examination shall be as decided by the University so as to follow the guidelines of apical Bodies like AICTE and/ or UGC

For Laboratory Courses, continuous assessment shall have various components of evaluation as given below :-

a) **Term Work (TW)** as internal assessment carrying 50% weightage shall comprise of number of experiments/practical's to be performed by each of the student as per the prescribed syllabus of the given course and a written test/viva voce. The weightage for TW for each of the laboratory course shall be of 50 (Fifty) marks, as far as possible, and are distributed as follows :-

Performance of experiments and journal submission –	20 marks
One Written test on practical topics/viva voce -	20 marks
Attendance (Theory and practical both) -	10 marks

The final certification and acceptance of the term work ensures the satisfactory performance in the given laboratory course and minimum passing in the term work.

b) **Performance and Oral Examination (POE) -** External laboratory examination will be assessed based on POE carrying 50% weightage. Herein every examinee has to perform one experiment/practical. This experiment/practical shall be only from the aforesaid list, which the examinee is deemed to have performed during his/her term work. Wherein the performance of experiment is not possible, a written examination shall be conducted. The oral questions i.e. viva-voce shall also be from the related topics. The weightage for POE in each subject shall be limited to a maximum of 50 (Fifty) marks only and the break-up shall be as follows :

Performance of experiment/written test:	30 marks
Oral examination/Viva-voce:	20 marks

15. (i) The subject of the Dissertation Study shall be communicated to the candidate by the head of the institution/Department at the beginning of the Third Semester on approval of the Research and Recognition Committee of the concerned Board of Studies.

(ii) An examinee shall carry out his/ her dissertation work beginning from third semester up to the end of fourth semester under the supervision of:

a) a recognized Post-Graduate Teacher of the college or institute.

OR

b) a person from industry or research institute possessing Master's degree in the appropriate branch of Engineering / Technology and has not less than 5 years of experience in the industry or research institution in the suitable capacity.

(iii) The examinee shall submit his dissertation study to the university through the Head of the institute or college not later than 31st July / 31st January, duly certified by the supervisor.

(iv) The Defense Examination of the dissertation study shall be conducted by the Board of examiners consisting of an external examiner appointed by the university and internal examiner. The external examiner shall not be associated with the examination of more than two examinees simultaneously.

v) One copy of the dissertation study shall be sent to the external examiner by the college as early as possible, but not less than ten days before the Defense Examination.

iii) An examinee of the fourth semester examination, who fails to submit his thesis within the prescribed date or fails to present oneself for the defense may, subject to other provisions of this Direction shall be readmitted to the examination at any subsequent date provided:

a) He/She pays the fee prescribed from time to time.
b) His/her application is received by the Controller of Examinations not later than one month before the date of commencement of examination.
c) He/She submits his thesis on the same subject two weeks prior to the examination date.

16. The A.T.K.T. rules shall be as indicated under TABLE - 3 for admission to the respective semesters of the program with Theory and Laboratory courses considered as separate heads of passing :-

Table 3: ATKT Rules for M. Tech Programs

Name of the Examination of M. Tech.	Students should have passed in all the subjects/courses of the following examination/s	Candidate should have passed in all heads of following examinations of the university	Candidate should have passed in all heads except in ***TWO*** passing heads of the following examinations taken together
I Semester	**B.E./B. Tech. or equivalent***	------	------
II Semester	-------	------	I Semester
III Semester	------	I Semester	II Semester
IV Semester	-------	II Semester	III Semester

***As specified in Table '2' of this Direction**

Provided,

(a) that an examinee who has secured pass grade in any course/subject (theory or laboratory) or courses/subjects shall, at his option, be exempted from appearing in that course/subject at the subsequent examination.

'Examination' means the Theory Course and the Laboratory Course with their respective institutional evaluation/assessment being considered as separate head of passing (though of the same course/subject), an examinee passing under any one of these, but failing in

another, shall at his option, be entitled to get "Exemption" in that part of the course/subject (either theory or laboratory), in which he has secured the pass grade.

17. The fees for the examination shall be as prescribed by the University from time to time and whenever any change is made in the fees prescribed for any particular examination that shall be notified through a notification for information to the examinees concerned.

18. As per the adopted Model Credit Grade System (CGS), the computation of Semester Grade Point Score (SGPS) and Cumulative Grade Point Score (CGPS) of an examinee shall follow the steps as given below :-

    The marks shall be granted in all the examinations which shall comprise of internal college assessment and University assessment marks. The total marks thus obtained for each Theory / Laboratory course shall be converted into Grades as per **Table 4** given below.

    SGPS shall be calculated based on Grade Points corresponding to Grade as given in **Table 4** below and the Credits allotted to respective Theory / Laboratory shall be as shown in the program scheme for respective semester.

$$SGPS = \frac{(C_I \times GP_I + C_{II} \times GP_{II} + \_\_\_\_\_ + C_n \times GP_n)}{C_I + C_{II} + \_\_\_\_\_ + C_n}$$

    Where, $C_{1...n}$ – No of Credits of individual course
    $GP_{1...n}$ – Grade Points obtained in the respective course.

    Cumulative Grade Point Score (CGPS) is indicative of the overall academic performance of a student in the given program, Bachelor of Engineering (B.E.). It shall be computed as cumulative total of the products of actual grade point scored and its weightage in terms credits of I, II, III and IV semester divided by total no of credits of I, II, III and IV semester.

$$CGPS = \frac{(SGPS_I \times C_I + SGPS_{II} \times C_{II} + SGPS_{III} \times C_{III} + SGPS_{IV} \times C_{IV})}{(C_I + C_{II} + C_{III} + C_{IV})}$$

    Where, $SGPS_{I \text{ to } IV}$ – Corresponding grade point scores obtained in I,II,III & IV Semester $C_{I \text{ to } IV}$ – Total no of Credits of I,II,III & IV Semester

19. (i) The theory and laboratory courses in which an examinee is to be examined, the maximum grade for these and the minimum grade which an examinee must obtain in order to secure exemption in the aforesaid course(s) and the examination are detailed in **Table 4**.

Table 4: Conversion of Marks to Grades in Choice Based Credit System (CBCS)
(For Theory & Laboratory Courses)

% SCORE (x) in Theory	% SCORE (x) in Practical	Grade	Grade Points (on 10 point scale)	Grade
80 ≤ **x** ≤ **100**	85 ≤ **x** ≤ **100**	A+	10	OUTSTANDING
70 ≤ **x** ≤ **79**	80 ≤ **x** ≤ **84**	A	9	EXCELLENT

60 ≤ **x** ≤ **69**	75 ≤ **x** ≤ **79**	B+	8	VERY GOOD
55 ≤ **x** ≤ **59**	70 ≤ **x** ≤ **74**	B	7	GOOD
50 ≤ **x** ≤ **54**	65 ≤ **x** ≤ **69**	C+	6	FAIR
45 ≤ **x** ≤ **49**	60 ≤ **x** ≤ **64**	C	5	AVERAGE
40 ≤ **x** ≤ **44**	50 ≤ **x** ≤ **59**	D	4	PASS
00 ≤ **x** ≤ **39**	00 ≤ **x** ≤ **49**	**F**	**0**	**FAIL**
Absent in Examination	**Absent in Examination**	**Z**	**-**	**ABSENT**

(ii) The minimum grade required to be secured for passing at the I/II/III/IV semester examinations shall be **'D'**, AS MENTIONED IN Table '4' ABOVE.

(iii) The internal and external component of evaluation for a given theory/laboratory course are not considered as separate passing heads instead they together form a single passing head i.e. the qualifying marks to be secured by a student in the given course either theory or laboratory are sum of internal and external components of its evaluation.

20. (i) The scope of the subjects shall be as indicated in the syllabus, with medium of instructions & examinations as English only.
(ii)The CGPA to percentage conversion shall be as per applicable Direction/ Notification of the University.

21. Provisions of Ordinance to provide grace marks for passing in a particular head and improvement of Division (Higher Class) and getting Distinction in the given course/subject and Condonation of Deficiency of Marks in a course in the faculty of engineering and technology shall apply to each examination under this Direction.

22. An examinee who does not pass, or who fails to present himself/herself for the examination shall be eligible for 'Readmission' to the same examination, on payment of a fresh fee and such other fees as may be prescribed from time to time.

23. An unsuccessful examinee, at any of the above examination, shall have an option to carry his/her internal assessment/term work marks for theory/laboratory examination to his/her successive attempt at the examination. **The examinee, however can forego his/her internal assessment/term work marks in a subject or subjects, in which case he/she shall be examined for a total of marks comprising the ESE/POE examination and MSE & IE/TW together to form the 'Grade', at his/her successive attempts at the examination. Such an option may be availed by the examinee by indicating the same in his/her "Application Form for Examination" and the option once exercised, it shall be "Final and Binding" on the concerned examinee.**

24. As soon as possible after the examinations, the Board of Examinations shall publish a list of successful examinees. The result of all examinations shall be classified on the basis of Semester Grade Point Score **'SGPS'** evaluated as specified in the adopted model of Choice Based Credit System and shall be notified in accordance to the provisions specified in the relevant Ordinance/Direction.

25. Notwithstanding anything to the contrary in this Direction, no one shall be admitted to an examination under this Direction, if he/she has already passed the same examination or an equivalent examination hitherto of this or any other Statutory University.

26. (i) The examinees who have secured pass grade in all the 'Subjects' prescribed for all the "Examinations" shall be eligible for the award of the **Post Graduate Degree of Master of Technology in the respective specialization** and branch of engineering in the prescribed form.

    (ii) The classification of 'Grade' of Examinees for the award of the Post Graduate Degree of Master of Technology shall be on the basis of CGPS Interval as shown in the Table '4' above wherein Cumulative Grade Point Score **'CGPS'** shall be evaluated by accounting **SGPS** of **I, II, III and IV Semester**, as explained in paragraph 18 of this Direction.

    (iii) The Degree, in the prescribed form shall be signed by the Vice-Chancellor.

27. The students of M. Tech who are presently pursuing their program in Semester Based Credit System (SBCS) pattern shall be provided with last chance to pass their examinations in SBCS pattern as mentioned below :

Last Chance to pass First Semester M. Tech (SBCS Pattern)	:	Winter, 2017
Last Chance to pass Second Semester M. Tech (SBCS Pattern)	:	Summer, 2018
Last Chance to pass Third Semester M. Tech (SBCS Pattern)	:	Winter, 2018
Last Chance to pass Fourth Semester M. Tech (SBCS Pattern)	:	Summer, 2019

However, after their last chance, the left over students, if any, shall be absorbed into the Choice Based Credit System (CBCS), as per absorption scheme approved by the University.

Sd/-

Place : Gadchiroli
Date : 19 /09/2016.

(Dr. N. V. KALYANKAR)
Vice Chancellor

GONDWANA UNIVERSITY, GADCHIROLI. Appendix - A

MASTER OF TECHNOLOGY IN CAD/CAM

(TWO YEARS COURSE IN THE FACULTY OF ENGINEERING & TECHNOLOGY)

TEACHING AND EXAMINATION SCHEME WITH CHOICE BASED CREDIT SYSTEM

I – SEMESTER

Unique Subject Code (USC)	Course type	Subject	Teaching Scheme				Examination Scheme									
			Hours per week			No. of Credits	Theory						Practical			
			L	Field Work/ Assignment/ Tutorial	P		Duration of Paper (Hrs	Max. Marks	Max. Marks Sessional		Total	Min. Passing Marks	Max. Marks	Max. Marks	Total	Min. Passing Marks
								ESE	MSE	IE			TW	PEE		
PCDS11	**C**	Data Structure & Algorithms	3	2	-	4	3	70	10	20	**100**	50	-	-	-	-
PCDS12	**C**	CNC & Robotics	3	2	-	4	3	70	10	20	**100**	50	-	-	-	-
PCDS13	**C**	Computer Graphics for CAD/CAM	3	2	-	4	3	70	10	20	**100**	50	-	-	-	-
PCDS14x	**P**	Elective - I	3	2	-	4	3	70	10	20	**100**	50	-	-	-	-
Laboratories/ Practical																
PCDS15	**C**	CAM Lab	-	-	2	1	3	-	-	-	-	-	25	25	**50**	25
PCDS16	**E**	Seminar - I	-	-	2	1	-	-	-	-	-	-	50	-	**50**	25
		TOTAL	12	08	4	18	-	**400**					**100**			
		SEMESTER TOTAL	**24**			**18**	**500**									

Elective – I (x) : (A) **Mechatronics** (B) **Total Quality Systems & Engineering** (C) **Artificial Intelligence**

GONDWANA UNIVERSITY, GADCHIROLI. Appendix - A

MASTER OF TECHNOLOGY IN CAD/CAM

(TWO YEARS COURSE IN THE FACULTY OF ENGINEERING & TECHNOLOGY)

TEACHING AND EXAMINATION SCHEME WITH CHOICE BASED CREDIT SYSTEM

II – SEMESTER

Unique Subject Code (USC)	Course type	Subject	Teaching Scheme				Examination Scheme									
			Hours per week			No. of Credits	Theory						Practical			
			L	Field Work/ Assignment/ Tutorial	P		Duration of Paper (Hrs.)	Max. Marks	Max. Marks		Total	Min. Passing Marks	Max. Marks	Max. Marks	Total	Min. Passing Marks
									Sessional							
								ESE	MSE	IE			TW	PEE		
PCDS21	**C**	Computer Integrated Manufacturing System	3	2	-	4	3	70	10	20	**100**	50	-	-	-	-
PCDS22	**C**	Product Data Management	3	2	-	4	3	70	10	20	**100**	50	-	-	-	-
PCDS23	**C**	Finite Element Method	3	2	-	4	3	70	10	20	**100**	50	-	-	-	-
PCDS24x	**P**	Elective – II (x)	3	2	-	4	3	70	10	20	**100**	50	-	-	-	-
Laboratories/ Practical																
PCDS25	**C**	CAD Lab	-	-	2	1	-	-	-	-	-	-	25	25	**50**	25
PCDS26	**E**	Seminar - II	-	-	2	1	-	-	-	-	-	-	50	-	**50**	25
		TOTAL	12	08	4	18	-	**400**					**100**			
		SEMESTER TOTAL	**24**			**18**	**500**									

Elective –II (x) : **(A) Computational Fluid Dynamics (B) Product Design & Development (C) Computer Aided Tool Design**

GONDWANA UNIVERSITY, GADCHIROLI. Appendix - A

MASTER OF TECHNOLOGY IN CAD/CAM

(TWO YEARS COURSE IN THE FACULTY OF ENGINEERING & TECHNOLOGY)

TEACHING AND EXAMINATION SCHEME WITH CHOICE BASED CREDIT SYSTEM

III – SEMESTER

Unique Subject Code (USC)	Course type	Subject	Teaching Scheme				Examination Scheme									
			Hours per week			No. of Credits	Theory						Practical			
			L	Field Work/ Assignment/ Tutorial	P		Duration of Paper (Hrs.)	Max. Marks	Max. Marks Sessional		Total	Min. Passing Marks	Max. Marks	Max. Marks	Total	Min. Passing Marks
								ESE	MSE	IE			TW	PEE		
PCDS31	**C**	Self Study Course	3	2	-	4	3	70	10	20	**100**	50	-	-	-	-
PCDS32x	**P**	Elective - III	3	2	-	4	3	70	10	20	**100**	50	-	-	-	-
Laboratories/ Practical																
PCDS33x	**E**	Grand Seminar / Industrial Training	-	10	-	5	-	-	-	-	-	-	100	-	**100**	50
PCDS34	**E**	Pre-Dissertation	-	10	-	5	-	-	-	-	-	-	200	-	**200**	100
		TOTAL	6	24	-	18	-	**200**					**300**			
		SEMESTER TOTAL	**30**			**18**	**500**									

Elective – III (x) : A) Pattern Recognition (BOS of Computer Science/Tech/Engg) B) Modeling and Simulation C) Soft Computing (BOS of Computer Science/Tech/Engg)

GONDWANA UNIVERSITY, GADCHIROLI. Appendix - A

MASTER OF TECHNOLOGY IN CAD/CAM

(TWO YEARS COURSE IN THE FACULTY OF ENGINEERING & TECHNOLOGY)

TEACHING AND EXAMINATION SCHEME WITH CHOICE BASED CREDIT SYSTEM

IV – SEMESTER

Unique Subject Code (USC)	Course type	Subject	Teaching Scheme				Examination Scheme								
			Hours per week			No. of Credits	Theory					Practical			
			L	Field Work/ Assignment/ Tutorial	P		Duration of Paper (Hrs.)	MaxMarks	Max. Marks		Total	Min. Passing Marks	Max. Marks	Max. Marks	Total	Min. Passing Marks
									Sessional							
								ESE	MSE	IE			TW	PEE		
PCDS41	E	Final Dissertation	-	24		18	-						250	250	500	250
TOTAL				24		18	-						**550**			
SEMESTER TOTAL			**24**			**18**	**500**									

GONDWANA UNIVERSITY, GADCHIROLI. Appendix - B

TEACHING AND EXAMINATION SCHEME (SEMESTER PATTERN CHOICE BASED CREDIT SYSTEM)

PROGRAM : MASTER OF TECHNOLOGY IN COMPUTER SCIENCE & ENGINEERING

I– SEMESTER

Unique Subject Code (USC)	Course type	Subject	Teaching Scheme				Examination Scheme									
			Hours per week			No. of Credits	Theory						Practical			
			L	Field Work / Assignment/ Tutorial	P		Duration of Paper (Hrs.)	Max.Marks	Max. Marks Sessional		Total	Min. Passing Marks	Max. Marks	Max. Marks	Total	Min. Passing Marks
								ESE	MSE	IE			TW	PE		
PCSS11	**C**	Advanced Computer Architecture	3	2	-	3+1	3	70	10	20	**100**	50	-	-	-	-
PCSS12	**C**	Advances in Operating System Design	3	2	-	3+1	3	70	10	20	**100**	50	-	-	-	-
PCSS13	**C**	Object Oriented Software Engineering	3	2	-	3+1	3	70	10	20	**100**	50	-	-	-	-
PCSS14x	**P**	Elective – I	3	2	-	3+1	3	70	10	20	**100**	50	-	-	-	-
Laboratories/ Practical																
PCSS15	**C**	ComputerSystem Lab – I	-	-	2	1	-	-	-	-	-	-	50	50	**100**	50
PCSS16	**E**	Seminar	-	-	2	1							50	-	**50**	25
		TOTAL	12	08	4	18	-	**400**					**150**			
SEMESTER TOTAL			**24**			**18**	**550**									

Elective – I (x) : (A) Data Warehousing and Data Mining (B) Information Retrieval

(C) Soft Computing

GONDWANA UNIVERSITY, GADCHIROLI. Appendix - B

TEACHING AND EXAMINATION SCHEME (SEMESTERPATTERN CHOICE BASED CREDIT SYSTEM)

PROGRAM : MASTER OF TECHNOLOGY IN COMPUTER SCIENCE & ENGINEERING

II – SEMESTER

Unique Subject Code (USC)	Course type	Subject	Teaching Scheme				Examination Scheme									
			Hours per week			No. of Credits	Theory						Practical			
			L	Field Work/ Assignment/ Tutorial	P		Duration of Paper (Hrs.)	Max. Marks			Total	Min. Passing Marks	Max. Marks	Max. Marks	Total	Min. Passing Marks
									Sessional							
								ESE	MSE	IE			TW	PEE		
PCSS 21	**C**	Advances in Algorithms	3	2	-	3+1	3	70	10	20	**100**	50	-	-	-	-
PCSS 22	**C**	Advanced Databases	3	2	-	3+1	3	70	10	20	**100**	50	-	-	-	-
PCSS 23	**C**	Advanced Digital Image Processing	3	2	-	3+1	3	70	10	20	**100**	50	-	-	-	-
PCSS 24x	**P**	Elective – II	3	2	-	3+1	3	70	10	20	**100**	50	-	-	-	-
Laboratories/ Practical																
PCSS 25	**C**	Computer System Lab – II	-	-	2	1	-	-	-	-	-	-	50	50	**100**	50
PCSS 26	**E**	Seminar	-	-	2	1							50	-	**50**	25
		TOTAL	12	08	4	18	-	**400**					**150**			
SEMESTER TOTAL			**24**			**18**	**550**									

Elective – II (x) :(A) Pattern Recognition (B) Statistical Machine Learning (C) Network Security & Cryptography

GONDWANA UNIVERSITY, GADCHIROLI. Appendix - B

TEACHING AND EXAMINATION SCHEME (SEMESTER PATTERN CHOICE BASED CREDIT SYSTEM)

PROGRAM : MASTER OF TECHNOLOGY IN COMPUTER SCIENCE & ENGINEERING

SEMESTER - III

Unique Subject Code (USC)	Course type	Subject	Teaching Scheme				Examination Scheme									
			Hours per week			No. of Credits	Theory						Practical			
			L	Field Work/ Assignment/ Tutorial	P		Duration of Paper (Hrs.)	Max. Marks	Max. Marks Sessional		Total	Min. Passing Marks	Max. Marks	Max. Marks	Total	Min. Passing Marks
								ESE	MSE	IE			TW	PEE		
PCSS31x	**P**	Elective-III	3	2	-	3+1	3	70	10	20	**100**	50				
PCSS32	**E**	Study of Soft Computing and Data Analysis Tools	-	8	-	5				100	**100**	50	-	-	-	-
PCSS33	**E**	Grand Seminar	-	6	-	4				100	**100**	50	-	-	-	-
Laboratories/ Practical																
PCSS34	**E**	Pre-Dissertation	-	8	-	5							150	-	**150**	75
		TOTAL	-	24	-	18	-	**300**					**150**			
		SEMESTER TOTAL	**24**			**18**	**450**									

Elective – III (x) :(A)Wireless Sensor Networks (B)VLSI Technology (C) CNC & Robotics

(D) Total Quality Systems & Engineering

GONDWANA UNIVERSITY, GADCHIROLI. Appendix - B

TEACHING AND EXAMINATION SCHEME (SEMESTERPATTERN CHOICE BASED CREDIT SYSTEM)

PROGRAM : MASTER OF TECHNOLOGY IN COMPUTER SCIENCE & ENGINEERING

IV– SEMESTER

Uniqu e Subje ct Code (USC)	Cou rse typ e	Subject	Teaching Scheme				Examination Scheme									
			Hours per week			No. of Cre dits	Theory						Practical			
			L	Field Work/ Assign ment/ Tutori al	P		Dura tion of Pape r (Hrs.)	Ma x. Ma rks	Max. Mark s		To tal	Min . Pass ing Mar ks	Ma x. Ma rks	Ma x. Ma rks	Tot al	Min . Pass ing Mar ks
									Sessi onal							
								ESE	M SE	I E			TW	PEE		
PCSS 41	**E**	Final Dissertatio n	-	24	-	18	-	-	-	-			200	250	**450**	225
SEMESTER TOTAL			**24**			**18**	**450**									

GONDWANA UNIVERSITY, GADCHIROLI. Appendix - C

TEACHING AND EXAMINATION SCHEME (SEMESTERPATTERN CHOICE BASED CREDIT SYSTEM)

PROGRAM : MASTER OF TECHNOLOGY IN ENERGY MANAGEMENT SYSTEMS

I – SEMESTER

Unique Subject Code (USC)	Course type	Subject	Teaching Scheme				Examination Scheme									
			Hours per week			No. of Credits	Theory						Practical			
			L	Field Work/ Assignment/ Tutorial	P		Duration of Paper (Hrs.)	Max. Marks			Total	Min. Passing Marks	Max. Marks	Max. Marks	Total	Min. Passing Marks
									Sessional							
								ESE	MSE	IE			TW	PEE		
PEMS11	C	Energy Scenario & Policies	3	2	-	3+1	3	70	10	20	**100**	50	-	-	-	-
PEMS12	C	Alternate Energy Systems – I	3	2	-	3+1	3	70	10	20	**100**	50	-	-	-	-
PEMS13	C	Alternate Energy Systems – II	3	2	-	3+1	3	70	10	20	**100**	50	-	-	-	-
PEMS14 x	P	Elective – I	3	2	-	3+1	3	70	10	20	**100**	50	-	-	-	-
Laboratories/ Practical																
PEMS15	C	Energy Lab – I	-	-	2	1	-	-	-	-	-	-	50	50	**100**	50
PEMS16	E	Seminar	-	-	2	1							50	-	**50**	25
		TOTAL	12	08	4	18	-	**400**					**150**			
SEMESTER TOTAL			**24**			**18**	**550**									

Elective – I (x): (a) Energy Conservation (b) Batteries and Fuel Cells (c) MHD Power Generation

GONDWANA UNIVERSITY, GADCHIROLI. Appendix - C

TEACHING AND EXAMINATION SCHEME (SEMESTERPATTERN CHOICE BASED CREDIT SYSTEM)

PROGRAM : MASTER OF TECHNOLOGY IN ENERGY MANAGEMENT SYSTEMS

II – SEMESTER

Unique Subject Code (USC)	Course type	Subject	Teaching Scheme				Examination Scheme									
			Hours per week			No. of Credits	Theory						Practical			
			L	Field Work/ Assignment/ Tutorial	P		Duration of Paper (Hrs.)	Max. Marks			Total	Min. Passing Marks	Max. Marks	Max. Marks	Total	Min. Passing Marks
									Sessional							
								ESE	MSE	IE			TW	PEE		
PEMS 21	**C**	Integrated Energy Systems	3	2	-	3+1	3	70	10	20	**100**	50	-	-	-	-
PEMS 22	**C**	Energy Modeling & Project Management	3	2	-	3+1	3	70	10	20	**100**	50	-	-	-	-
PEMS 23	**C**	Energy Audit & Management	3	2	-	3+1	3	70	10	20	**100**	50	-	-	-	-
PEMS 24x	**P**	Elective – II	3	2	-	3+1	3	70	10	20	**100**	50	-	-	-	-
Laboratories/ Practical																
PEMS 25	**C**	Energy Lab – II	-	-	2	1	-	-	-	-	-	-	50	50	**100**	50
PEMS 26	**E**	Seminar	-	-	2	1							50	-	**50**	25
		TOTAL	12	08	4	18	-	**400**					**150**			
		SEMESTER TOTAL	**24**			**18**	**550**									

Elective – II (x): (a) Project, Planning & Design of Renewable Energy Systems (b) Environmental Science & Engineering (c) Energy Analysis

GONDWANA UNIVERSITY, GADCHIROLI. Appendix - C

TEACHING AND EXAMINATION SCHEME (SEMESTERPATTERN CHOICE BASED CREDIT SYSTEM)

PROGRAM : MASTER OF TECHNOLOGY IN ENERGY MANAGEMENT SYSTEMS

III – SEMESTER

Unique Subject Code (USC)	Course type	Subject	Teaching Scheme				Examination Scheme									
			Hours per week			No. of Credits	Theory						Practical			
			L	Field Work/ Assignment/ Tutorial	P		Duration of Paper (Hrs.)	Max. Marks	Max. Marks Sessional		Total	Min. Passing Marks	Max. Marks	Max. Marks	Total	Min. Passing Marks
								ESE	MSE	IE			TW	PEE		
PEMS31	C	Self Study Course	-	2	-	4	3	70	10	20	**100**	50	-	-	-	-
PEMS32x	P	Elective – III	3	2	-	3+1	3	70	10	20	**100**	50	-	-	-	-
Laboratories/ Practical																
PEMS33	E	Industrial Training	-	5	-	5	-	-	-	-	-	-	150	50	**200**	100
PEMS34	E	Pre Dissertation	-	6	-	5							100	50	**150**	75
		TOTAL	3	15	-	18	-	**200**					**350**			
SEMESTER TOTAL			**18**			**18**	**550**									

Elective – III (x): (a) Advance Power Electronics (b) Energy Efficient Building (c) Data Analysis (d) Thermal Storage System (e) Neural Network & Fuzzy Logic

GONDWANA UNIVERSITY, GADCHIROLI. Appendix - C

TEACHING AND EXAMINATION SCHEME (SEMESTERPATTERN CHOICE BASED CREDIT SYSTEM)

PROGRAM : MASTER OF TECHNOLOGY IN ENERGY MANAGEMENT SYSTEMS

IV – SEMESTER

Unique Subject Code (USC)	Course type	Subject	Teaching Scheme				Examination Scheme									
			Hours per week			No. of Credits	Theory									
			L	Field Work/ Assignment/ Tutorial	P		Duration of Paper (Hrs.)	Max. Marks	Max. Marks Sessional		Total	Min. Passing Marks	Max. Marks	Practical	Total	Min. Passing Marks
								ESE	MSE	IE			TW	PEE		
PEMS 41	E	Final Dissertation	-	10	-	18	-	-	-	-			150	200	350	175
SEMESTER TOTAL			1o			18	350									

GONDWANA UNIVERSITY, GADCHIROLI. Appendix - D

MASTER OF TECHNOLOGY IN HEAT POWER ENGINEERING

(TWO YEARS COURSE IN FACULTY OF ENGINEERING & TECHNOLOGY)

COURSE AND EXAMINATION SCHEME WITH CHOICE BASED CREDIT SYSTEM

I – SEMESTER

Unique Subject Code (USC)	Course type	Subject	Teaching Scheme				Examination Scheme									
			Hours per week			No. of Credits	Theory						Practical			
			L	Field Work/ Assignment/ Tutorial	P		Duration of Paper (Hrs.)	Max. Marks			Total	Min. Passing Marks	Max. Marks		Total	Min. Passing Marks
									Sessional							
								ESE	MSE	IE			TW	PEE		
PHPS 11	C	Advanced Heat and Mass Transfer	3	2	-	4	3	70	10	20	100	50	-	-	-	-
PHPS 12	C	Advanced Thermodynamics	3	2	-	4	3	70	10	20	100	50	-	-	-	-
PHPS 13	C	Thermal Engineering -I	3	2	-	4	3	70	10	20	100	50	-	-	-	-
PHPS 14x	P	Elective-I	3	2	-	4	3	70	10	20	100	50	-	-	-	-
Laboratories/ Practical																
PHPS 15	C	Heat Power Engineering Lab – I	-	-	2	1	3	-	-	-	-	-	25	25	50	25
PHPS 16	E	Seminar-I			2	1	3						50	50	50	25
TOTAL			12	08	4	18	-	400					100			
SEMESTER TOTAL			24			18	500									

Elective-I(X): ***(A) Advanced power Plant Engineering. (B): Cryogenic Engineering. (C): Computer Aided Design.***

GONDWANA UNIVERSITY, GADCHIROLI. Appendix - D

MASTER OF TECHNOLOGY IN HEAT POWER ENGINEERING

(TWO YEARS COURSE IN FACULTY OF ENGINEERING & TECHNOLOGY)

COURSE AND EXAMINATION SCHEME WITH CHOICE BASED CREDIT SYSTEM

II – SEMESTER

Unique Subject Code (USC)	Course type	Subject	Teaching Scheme				Examination Scheme									
			Hours per week			No. of Credits	Theory						Practical			
			L	Field Work/ Assignment/ Tutorial	P		Duration of Paper (Hrs.)	Max. Marks			Total	Min. Passing Marks	Max. Marks	Max. Marks	Total	Min. Passing Marks
									Sessional							
								ESE	MSE	IE			TW	PEE		
PHPS 21	C	Fluid Dynamics	3	2	-	4	3	70	10	20	100	50	-	-	-	-
PHPS 22	C	Advanced Refrigeration and Air Conditioning	3	2	-	4	3	70	10	20	100	50	-	-	-	-
PHPS 23	C	Thermal Engineering -II	3	2	-	4	3	70	10	20	100	50	-	-	-	-
PHPS 24x	P	Elective – II (x)	3	2	-	4	3	70	10	20	100	50	-	-	-	-
Laboratories/ Practical																
PHPS 25	C	Heat Power Engineering Lab –II	-	-	2	1	3	-	-	-	-	-	25	25	50	25
PHPS 26	E	Seminar-II			2	1	3						50	50	50	25
TOTAL			12	08	4	18	-	400					100			
SEMESTER TOTAL			24			18	500									

Elective – II (x) : *(A) Design of Heat Transfer Equipments (B) Design of I.C. Engine Components and Subsystems. (C)Thermal Storage Systems*

GONDWANA UNIVERSITY, GADCHIROLI. Appendix - D

MASTER OF TECHNOLOGY IN HEAT POWER ENGINEERING

(TWO YEARS COURSE IN FACULTY OF ENGINEERING & TECHNOLOGY)

COURSE AND EXAMINATION SCHEME WITH CHOICE BASED CREDIT SYSTEM

III – SEMESTER

Unique Subject Code (USC)	Course type	Subject	Teaching Scheme				Examination Scheme									
			Hours per week			No. of Credits	Theory						Practical			
			L	Field Work/ Assignment/ Tutorial	P		Duration of Paper (Hrs.)	Max. Marks	Max. Marks Sessional		Total	Min. Passing Marks	Max. Marks	Max. Marks	Total	Min. Passing Marks
								ESE	MSE	IE			TW	PEE		
PHPS 31	C	Solar and Wind Energy Utilization	3	2	-	4	3	70	10	20	100	50	-	-	-	-
PHPS 32x	P	Elective – III (x)	3	2	-	4	3	70	10	20	100	50	-	-	-	-
Laboratories/ Practical																
PHPS 33	E	Grand Seminar? Industrial Training		10		5	3						100	-	100	50
PHPS 34	E	Pre-Dissertation	-	10		5	3	-	-	-	-	-	200	-	200	100
TOTAL			6	24		18	-	200					300			
SEMESTER TOTAL			30			18	500									

Elective – III (x): (A): Advanced Fluid Mechanics. (B): Thermal Measurements & Process Controls. (C): Turbo Machines.

GONDWANA UNIVERSITY, GADCHIROLI. Appendix - D

MASTER OF TECHNOLOGY IN HEAT POWER ENGINEERING

(TWO YEARS COURSE IN FACULTY OF ENGINEERING & TECHNOLOGY)

COURSE AND EXAMINATION SCHEME WITH CHOICE BASED CREDIT SYSTEM

IV – SEMESTER

Unique Subject Code (USC)	Course type	Subject	Teaching Scheme				Examination Scheme								
			Hours per week			No. of Credits	Theory					Practical			
			L	Field Work/ Assignment/ Tutorial	P		Duration of Paper (Hrs.)	MaxMarks	Max. Marks Sessional		Total	Min. Passing Marks	Max. Marks	Max. Marks	Total	Min. Passing Marks
								ESE	MSE	IE			TW	PEE		
PHPS 41	E	Final Dissertation	-	24		18	3						250	250	500	250
TOTAL				24		18	-						**500**			
SEMESTER TOTAL			**24**			**18**	**500**									

GONDWANA UNIVERSITY, GADCHIROLI

TEACHING AND EXAMINATION SCHEME (SEMESTER PATTERN CHOICE BASED CREDIT SYSTEM)

PROGRAM: MASTER OF TECHNOLOGY IN ELECTRONICS & COMMUNICATION ENGINEERING PROGRAM CODE : EC
FACULTY : ENGINEERING & TECHNOLOGY
DURATION : TWO YEARS

I– SEMESTER

Unique Subject Code (USC)	Course type	Subject	Teaching Scheme				Examination Scheme								
			Hours per week			No. of Credits	Theory					Practical			
			L	Field Work/ Assignment/ Tutorial	P		Duration of Paper (Hrs.)	Max. Marks			Total	Min. Passing Marks	Max. Marks	Max. Marks	Total	Min. Passing Marks
								Max. Marks	Sessional							
								ESE	MSE	IE			TW	PE		
PECS 11	**C**	Probability Theory and Stochastic Processes	3	2	-	4	3	70	10	20	**100**	50	-	-	-	-
PECS 12	**C**	Data Communication and Networking	3	2	-	4	3	70	10	20	**100**	50	-	-	-	-
PECS 13	**C**	Advanced Digital Signal Processing	3	2	-	4	3	70	10	20	**100**	50	-	-	-	-
PECS	**P**	Elective	3	2	-	4	3	70	10	20	**10**	50	-	-	-	-

14x		– I									**0**					
Laboratories/ Practical																
PECS 15	**C**	Lab Practice – I	-	-	2	1	-	-	-	-	-	-	50	50	**100**	50
PECS 16	**E**	Seminar - I	**-**	-	2	1							**50**	**-**	**50**	25
TOTAL			12	08	4	18	-	**400**					**150**			
SEMESTER TOTAL			**24**		**18**	**550**										

Elective – I (x) : (A) Information Theory and Coding (B) VLSI Technology and design (C) Image Processing & Analysis

Lab Practice -I: At least FIVE Practical from each subject – 1) Data Communication and Networking & 2) Advanced Digital Signal Processing.

GONDWANA UNIVERSITY, GADCHIROLI

TEACHING AND EXAMINATION SCHEME (SEMESTERP ATTERN CHOICE BASED CREDIT SYSTEM)

PROGRAM : MASTER OF TECHNOLOGY IN ELECTRONICS & COMMUNICATION ENGINEERING
PROGRAM CODE : EC
FACULTY : ENGINEERING & TECHNOLOGY
DURATION : TWO YEARS

II– SEMESTER

Unique Subject Code (USC)	Course type	Subject	Teaching Scheme				Examination Scheme									
			Hours per week			No. of Credits	Theory						Practical			
			L	Field Work / Assignment/ Tutorial	P		Duration of Paper (Hrs.)	Max. Marks	Max. Marks	Total		Min. Passing Marks	Max. Marks	Max. Marks	Total	Min. Passing Marks
									Sessional							
								ESE	MSE	IE			TW	PEE		
PECS21	**C**	Embedded System	3	2	-	4	3	70	10	20	**100**	50	-	-	-	-
PECS22	**C**	Advanced Optical Communication	3	2	-	4	3	70	10	20	**100**	50	-	-	-	-
PECS23	**C**	Cellular & Mobile Communication	3	2	-	4	3	70	10	20	**100**	50	-	-	-	-
PECS24x	**P**	Elective – II	3	2	-	4	3	70	10	20	**100**	50	-	-	-	-
Laboratories/ Practical																
PECS25	**C**	Lab Practice – II	-	-		2	1	3	-	-	-	-	-	50	50	**100**	50
PECS26	**E**	Seminar - II				2	1	3						**50**	**-**	**50**	25
		TOTAL	12	08		4	18	-	**400**					**150**		

SEMESTER TOTAL	**24**	**18**	**550**

Elective – I (x) :(A) Advanced Audio & Video Communication (B) Fuzzy logic and and Neural Networks (C) Microwave Devices & Amplifier Design

Lab Practice -II: At least FIVE Practical from each subject – 1) Embedded System 2) Cellular & Mobile Communication

GONDWANA UNIVERSITY, GADCHIROLI

TEACHING AND EXAMINATION SCHEME (SEMESTERPATTERN CHOICE BASED CREDIT SYSTEM)

PROGRAM : MASTER OF TECHNOLOGY IN ELECTRONICS & COMMUNICATION ENGINEERING
PROGRAM CODE : EC
FACULTY : ENGINEERING & TECHNOLOGY
DURATION : TWO YEARS

III– SEMESTER

Unique Subject Code (USC)	Course type	Subject	Teaching Scheme				Examination Scheme									
			Hours per week			No. of Credits	Theory					Practical				
			L	Field Work/ Assignment/ Tutorial	P		Duration of Paper (Hrs.)	Max. Marks	Max. Marks Sessional		Total	Min. Passing Marks	Max. Marks	Max. Marks	Total	Min. Passing Marks
								ESE	MSE	IE			TW	PEE		
PECS31	**P**	Elective – III	3	2	-	4	3	70	10	20	**100**	50	-	-	-	-
PECS32	**P**	Elective – IV	3	2	-	4	3	70	10	20	**100**	50	-	-	-	-
Laboratories/ Practical																
PECS33	**E**	Grand Seminar/Industrial Training		-	10	5	-	-	-			100	-	**100**	50	
PECS34	**E**	Pre			10	5						250	-		**250**	125

		Dissertation														
TOTAL			06	04	20	18	-	**200**					**350**			
SEMESTER TOTAL								**30**			**18**	**550**				

Elective – III (x) : (A) Wireless Sensor Network (B) Real Time Signal Processing (C) RF Circuit

D) CNC and Robotics E) PLCs and Scada

Elective – IV (x) : (A) Advanced Satellite Communication (B) Micro Electro Mechanical System (C) Network Security & Cryptography

(D) Artificial Intelligence (E) Soft Computing

Note: 1) In grand Seminar students are required to deliver a seminar on any topics based on all courses of second semester of the program.2) Dissertation (Project Phase-I): Student has to submit the report and deliver a seminar based on dissertation topic. It is to be evaluated by three members panel of examiners headed by HOD where in Guide should be one of the member of the panel. Last date of submission of report shall be one week before the end of semester.

GONDWANA UNIVERSITY, GADCHIROLI

TEACHING AND EXAMINATION SCHEME (SEMESTER PATTERN CHOICE BASED CREDIT SYSTEM)

PROGRAM : MASTER OF TECHNOLOGY IN ELECTRONICS & COMMUNICATION ENGINEERING
PROGRAM CODE : EC
FACULTY : ENGINEERING & TECHNOLOGY
DURATION : TWO YEARS

IV– SEMESTER

Unique Subject Code (USC)	Course type	Subject	Teaching Scheme				Examination Scheme								
			Hours per week			No. of Credits	Theory						Practical		
			L	Field Work/ Assignment/ Tutorial	P		Duration of Paper (Hrs.)	Max. Marks	Max. Marks Sessional		Total	Min. Passing Marks	Max. Marks	Max. Marks	Total	Min. Passing Marks
								ESE	MSE	IE			TW	PEE		
PECS41	E	Dissertation	-	24	-	18		-	-	-	-	-	150	200	350	175
TOTAL			-	24	-	18	-	-				-	350			-
SEMESTER TOTAL			**24**				**18**	**350**								

Note: Dissertation (Project phase-II): Internal assessment of dissertation is to be carried out by the committee constituted by HOD, where in Guide should be one of the members. External assessment of dissertation (Complete work) is to be carried out by panel of Examiner consisting of (Guide) and External Examiner. Candidate shall present the entire work of dissertation, followed by viva-voce. Last date of submission of dissertation shall be end of semester.