## **USHA MARTIN UNIVERSITY, JHARKHAND**



(Established by Jharkhand Government under Sec.2(f) of UGC Act 1956)

**CURRICULUM** 

for

DIPLOMA IN ELECTRICAL AND ELECTRONICS ENGINEERING

offered by

FACULTY OF ENGINEERING & APPLIED SCIENCE

ORDINANCE No.: -UMU/Diploma/ELE/2022/003 GOVERNING

Effective from Academic Session 2022

## **CONTENTS**

I. Definition

II. General Provisions & Admission

i. Supernumerary Admissions

III. Reservation

IV. Conduct of the programme V. Programme fee

VI. Attendance Rules

VII. Course Structure and Scheme of Examination

VIII. Examination system

IX. Script and duration of examination

X. Evaluation pattern

## ORDINANCES GOVERNING THREE YEAR DIPLOMA IN ELECTRICAL AND ELECTRONICSENGINEERING (REGULAR/LATERAL ENTRY) (Effective from 2022) I. DEFINITIONS

- (a) Academic Year: An academic year comprises even semester (January June), and Odd semester (July December) as well as other study periods covering 365 days.
- (b) Semester: An academic year in the University is divided into two academic periods known as semesters. Evensemester starts from January and ends on June, similarly odd semester starts form July and ends on December.
- (c) Competent Authority: Chancellor, Pro-Chancellor, Vice Chancellor, Pro-Vice Chancellor, Registrar, Board of Governors, Board of Management, Academic Council, Research Council & Finance Committee and any other authority as notified from time to time.
- (d) Credit: One instruction hour/week in the form of lectures in a course/subject shall be considered equivalent to one credit. For Tutorial one credit is equivalent to one hour/week andfor Practical one credit is equivalent to two hours/week. By the way of project /field work, report writing, industry visits and other course requirements such as project study, minor and major projects etc. The credits for an activity are considered to have earned only when an activity has been completed and cleared as prescribed by the University.

#### **II. GENERAL PROVISIONS & ADMISSION:**

The Programme of study leading to Diploma in Electrical and Electronics and Electronics Engineering of the Usha Martin University (UMU) shall be conducted under the Faculty of Diploma in Engineering & Applied Science, on regular basis or lateral entry basis. Its duration shall be of three years for regularprogramme or two years for lateral entry programme spread over six or four semesters respectively.

- **1**. The last date for receipt of applications for admission to these courses shall be notified by theUniversity every year.
- 2. The minimum eligibility criteria for the Admissions to Diploma in Engineering shall be as follows:
- i. Admission to Diploma in Electrical and Electronics Regular programme: The minimum qualification required for admission into a diploma course is passing of the Secondary School exam conducted by centralor state examination board and having pass marks in aggregate of Science and Mathematics.
- ii. Admission to Diploma Lateral entry programme (in 3rd semester/ 2nd year): Passing of Senior Secondary examination conducted by central or state examination board and having minimumpass marks in aggregate of Physics, Chemistry and Mathematics or ITI or equivalent.
- iii. Admission also be taken from the list of passing candidates appeared in joint entrance examconducted by Jharkhand Technical University.
- iv. The University also reserves the right to conduct entrance tests, if considered appropriate topromote quality.

#### Note:

- a. A candidate seeking admission in Diploma in Electrical and Electronics Engineering programme must have secured a minimum of pass marks in aggregate in qualifying exam. Candidates belonging toSC/ST/OBC, physically challenged, war widow and other such categories, a relaxation of 5% would apply as per the Government of India reservation policy.
- b. Depending on the number of applicants for the programme the University may constitute

aselection committee for conducting viva-voce / interview of the aspiring candidates.

- 3. All admissions shall be finalized within the date notified by the University. Candidates not fulfilling the minimum eligibility criteria/conditions by the notified date shall be removed from the rolls.
- 4. No Application Form shall be considered for admission unless it is complete in all respect including self-attested copies of the necessary documents and photographs of the candidate.Such documents would include the following:
  - a. Self-Attested copies of mark-sheets and certificates of all the examinations passed.
  - b. School Leaving Certificates (SLC)/ Migration Certificates/ Transfer Certificate (TC) from theprevious institution.
  - c. Character Certificate by the competent authority of the previous University/Institutions.
  - d. Certificate from an appropriate authority certifying that the candidate belongs to Scheduled Caste/Scheduled Tribe/OBC or that the candidate is Physically Challenged.
- 5. The completed Application Forms for registration at UMU along with documents required underpara 4 of Section II (General provisions and admissions) shall be submitted to the Registrar office of UMU by the notified date.

6. Provisions relating to provisional enrolment of the candidates: -

- a. Candidate not possessing the required qualification by closing date of submission of necessarydocuments may be allowed to provisionally register with the University. Such candidates will be deemed as provisional candidates till they fulfil the eligibility criteria by the due date.
- b. Provisional admission cannot be claimed by any applicant as a matter of right. The provisional admission or readmission of an applicant shall be entirely at the discretion of the competent authority of the University, which may accept/refuse to admit any candidate without assigningany reason thereof.
- c. Provisional admission shall be made strictly on availability of seats on the date of admission.
- d. The candidate granted provisional admission shall deposit fee before the notified date, failing which the admission shall stand cancelled.
- e. Provisional admission of a candidate is liable to be cancelled by the University at any time:
- 1. If it is found that there is something against the candidate which would have prevented him/her from being admitted to the course.
- 2. If the candidate is found at a later stage to have provided any false information.
- 3. If he/she has been punished for an act of gross misconduct, indiscipline or an act involvingmoral turpitude.

#### i. Supernumerary Admissions:

a) Admission of Foreign Nationals:

- i. All application forms may be submitted in the office of the Registrar for processing for their admission. The Registrar office shall initiate the necessary formalities for the enrolment of such candidate's subject to fulfilment of all necessary conditions notified by various authorities from time to time for the admission of candidates falling under this clause.
- ii. Foreign Nationals are exempted from appearing in any written test, group discussion andInterview.

iii. Fee for the Foreign Nationals: The programme fee for such category of candidates will be notified by the competent authority at the start of the admission session.

#### **III. RESERVATIONS:**

The University will follow the guidelines of the various competent authorities at state and national level with respect to reservation policy for admission to the Higher Education Institutions from time to time as and when applicable. In case the allocated seats under reservation categories remain vacant, the University may admit the candidates from general category against such vacant seats.

#### **IV. CONDUCT OF THE PROGRAMME:**

- a. A candidate admitted to the Diploma in Electrical and Electronics Engineering Programme shall be permitted to appear at University Examinations only when he/she has been enrolled as a student of the University and has paid all fees and attended at least 75% classes in each registered course/subjects.
- b. A candidate must earn the prescribed number of credits as mentioned in the Course Structure approved by the Academic Council (AC) for successfully completing the Diploma in Electrical and Electronics Engineering Programme.
- c. A student of the Diploma in Electrical and Electronics Engineering Programme shall not be permitted to seek admission concurrently to any other equivalent or higher degree in any otherUniversity/institutions.
- d. All Six Semester examinations of the Diploma in Electrical and Electronics Engineering Regular Programme or FourSemester examinations of the Diploma in Electrical and Electronics Engineering Lateral entry Programme shall be conducted in accordance with Choice Based Credit System (CBCS) regulation of University Grant Commission (UGC).
- e. The Semester examinations shall be held at the end of respective Semesters. However, those students who fail to qualify for one or more courses/subjects in any semesters shall appear in the examination later on as approved by AC.
- f. All applications to appear at the Diploma in Electrical and Electronics Engineering Programme semester examinations shall be addressed to the Controller of Examinations and shall be presented withinsuch time and date as notified. Every application form along with no objection form shall be submitted to the Controller of Examinations (COE) on or before the date prescribed for the purpose.

#### **V. PROGRAMME FEES:**

The fee for the Diploma in Electrical and Electronics Engineering Programme shall be decided by the competent authority at the start of each admission session. The Vice Chancellor of the University may constitute a fee fixation committee to decide about the fee structure of the programme offered by the University. However, any decision relating to fee fixation superseding any regulation/ guideline issued by various statutory councils at state and national level shall stand null and voidab initio.

#### **VI. ATTENDANCE RULES:**

- a. A student is required to have full, i.e., 100%, attendance and condoning up to 25% can be considered for specific cogent reasons. A student shall maintain at least 75% of the classes in each course/subject at any circumstances.
- b. Representing University level competitions/events/programs in a semester may be adjusted in calculating overall attendance of the semester. However, such adjustments shall be decided by the competent authority notified by the Vice Chancellor for this purpose.
- c. The attendance of a newly admitted candidate shall be counted from the date of his/her admission, or date of beginning of classes whichever is later, while in the case of promoted candidates, attendance shall be counted from the date on which respective class begins.

d. There shall be an Attendance Monitoring Committee (AMC) under the chairmanship of the Vice Chancellor to decide the mechanism of monitoring and regulating the attendance of the students.

## **Definition of Credits**

1 Hr. Lecture (L) per week	1 Credit
1 Hr. Tutorial (T) per week	1 Credit
1 Hr. Practical (P) per week	0.5 Credit

## **Course Code Definitions**

DHSC	Diploma Humanities & Social Science Courses
DEEC	Diploma Electrical and Electronics Engineering
	(Core) Courses
DEEE	Diploma Electrical and Electronics Engineering
	Elective Courses
DOEC	Diploma Open Elective Courses
DPRW	Diploma Project Work
DAUC	Diploma Audit Courses

## Structure of Diploma in Electrical and Electronics Engineering Programme

S. No.	Category	Breakup of
		Credits
01.	Humanities and Social Science Courses	01
04.	Program Core courses	47
05.	Program Elective courses	16
06.	Open Elective courses (from other technical and /or emerging subjects)	9
07.	Project work and seminar	7
08.	Audit Courses	Non Credit
	[Induction training, Indian Constitution, Essence of	
	Indian Traditional Knowledge etc.]	
	Total	80

## **Category-wise Courses**

#### 01. HUMANITIES & SOCIAL SCIENCES COURSES

## Note:

(i) Number of Humanities & Social Sciences Courses: 1 (ii) Credits: 1

S. No.	Code No.	Course Title	]	Hours per week	5	Semester	Credits
			L	Т	Р		
01.	DHSC311	Development of Life Skills	0	0	2	III	1

#### 02. PROGRAM CORE COURSES Note:

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<ul><li>(i) Number of Program Core Courses: 23</li><li>(ii) Credits: 47</li></ul>	

S. No.	Code No.	Course Title	Hours per week			Hours per week			Semester	Credits
			L	Т	Р					
01.	DEEC301	Renewable and Non-renewable Energy Generation	3	0	0	III	3			
02.	DEEC311	Renewable and Non-renewable Energy Generation Laboratory	0	0	2	III	1			
03.	DEEC312	Electrical Circuit	2	1	0	III	3			
04.	DEEC313	Electrical Circuit Laboratory	0	0	2	III	1			
05.	DEEC303	Electrical and Electronics Measurement	2	1	0	III	3			
06.	DEEC313	Electrical and Electronics Measurement Laboratory	0	0	2	III	1			
07.	DEEC304	DC Machine and Transformer	2	1	0	III	3			
08.	DEEC314	DC Machine and Transformer Laboratory	0	0	2	III	1			
09	DEEC305	Basic Electronics	3	0	0	III	3			
10.	DEEC315	Basic Electronics Laboratory	0	0	2	III	1			
11.	DEEC401	Fundamentals of Power Electronics	3	0	0	IV	3			
12.	DEEC411	Fundamentals of Power Electronics Laboratory	0	0	2	IV	1			
13.	DEEC402	Electric Power Transmission and Distribution	3	0	0	IV	3			
14.	DEEC412	Electric Power Transmission and Distribution Laboratory	0	0	2	IV	1			
15.	DEEC403	AC Machine	2	1	0	IV	3			
16.	DEEC413	AC Machine Laboratory	0	0	2	IV	1			

17.	DEEC501	Microcontroller Applications	3	0	0	V	3
18	DFFC511	Microcontroller Applications	0	0	2	V	1
10.	DLLCJII	Laboratory	0	U	2	•	1
19.	DEEC502	Control System	3	0	0	V	3
20.	DEEC512	Control System Laboratory	0	0	2	V	1
21.	DEEC601	Building Electrification	3	0	0	VI	3
22.	DEEC611	Building Electrification Laboratory	0	0	2	VI	1
23.	DEEC602	Entrepreneurship and Startups	3	0	0	VI	3
	Total		32	4	22		47

03. List of Program Elective Courses [PE] Note: Number of Program Core Courses: 8 Credits: 16

S. No	CourseCode	CourseCode Course Title	Ho We	urs j eek	per	Credits	Semes- ter
			L	Т	Р	(L+T+P)	
	·	Elective-I (any one to be select	ed)	-			-
1.	DEEE404A	Utilization of Electrical Energy	3	0	0	3	IV
2.	DEEE404B	Electrical and Electronics Testing Commissioning	3	0	0	3	IV
3.	DEEE404C	Industrial Automation & Control	3	0	0	3	IV
		Elective –II (any one to be selec	ted)				1
1.	DEEE405A	Industrial Instrumentation and Condition Monitoring	3	0	0	3	IV
2.	DEEE405B	Illumination Practices	3	0	0	3	IV
3.	DEEE405C	Electrical Estimation and Costing	3	0	0	3	IV
		Elective-III (any one to be selec	ted)			-	-
1.	DEEE503A	Special Machine and Drives	3	0	0	3	V
2.	DEEE513A	Special Machine and Drives Laboratory	0	0	2	1	V
3.	DEEE503B	Communication Technologies	3	0	0	3	V
4.	DEEE513B	Communication Technologies Laboratory	0	0	2	1	V
5.	DEEE503C	Switchgear and Protection	3	0	0	3	V
6.	DEEE513C	Switchgear and Protection Laboratory	0	0	2	1	V
	-	Elective-IV (any one to be selec	ted)			•	•
1.	DEEE504A	Wind Power Technologies	3	0	0	3	V
2.	DEEE514A	Wind Power Technologies Laboratory	0	0	2	1	V
3.	DEEE504B	Biomass and Micro-hydro Power Plants	3	0	0	3	V
4.	DEEE514B	Biomass and Micro-hydro Power Plants Laboratory	0	0	2	1	V
5.	DEEE504C	Electric Traction	3	0	0	3	V

6.	DEEE514C	Electric Traction Laboratory	0	0	2	1	V
Total			36	0	12	42	

## 6. OPEN ELECTIVE COURSES

Note:

Number of Open Elective Courses: 3 Credits: 9

S.	Code No.	Course Title	Hours			Semester	Credits			
No.				week						
			L	Т	Р					
		Open Elective-I (any one to be	selec	ted)						
01.	DOEC506A	Artificial Intelligence & Machine	3	0	0	V	3			
		Learning								
02.	DOEC506B	Economic Policies in India	3	0	0	V	3			
03.	DOEC506C	Soft Computing Techniques	3	0	0	V	3			
		Open Elective II (any one to be	selec	ted)						
01.	DOEC604A	Project Management	3	0	0	VI	3			
02.	DOEC604B	PLC/SCADA	3	0	0	VI	3			
03.	DOEC604C	Energy Conservation & Audit	3	0	0	VI	3			
04.	DOEC604D	Engineering Economics & Accountancy	3	0	0	VI	3			
	Open Elective III (any one to be selected)									
01.	DOEC614A	Product Design	3	0	0	VI	3			
02.	DOEC614B	<b>Operations Research</b>	3	0	0	VI	3			
03.	DOEC614C	Internet of Things	3	0	0	VI	3			

## 07. PROJECT WORK, SEMINAR AND INTERNSHIP IN INDUSTRYNote:

Number of Project work and Seminar: 3 Credits: 7

S. No.	Code No.	Course Title	Hours per Week		Hours per Week		Hour per Wee		Semester	Credits
			L	Т	Р					
01.	DPRW511	Project-I				V	3			
03.	DPRW611	Project-II				VI	3			
04.	DSER601	Seminar	1	0	0	VI	1			

## **08. AUDIT COURSES**

Note:

- a. Number of Audit Courses: 3
- b. Credits: 0

S. No.	Code No.	Course Title	Hours per Week		5	Semester	Credits
			L	Т	Р		
02.	DAUC301	Values & Ethics	2	0	0	III	00
03.	DAUC511	Essence of Indian Knowledge &	2	0	0	V	00
		Tradition					
04.	DAUC611	Indian Constitution	2	0	0	VI	00

#### COURSE STRUCTURE AND SCHEME OF EXAMINATION

#### USHA MARTIN UNIVERSITY, JHARKHAND TEACHING AND EXAMINATION SCHEME FOR DIPLOMA **COURSE NAME : ELECTRICAL AND ELECTRONICS ENGINEERING GROUP DURATION OF COURSE : 6 SEMESTERS** WITH EFFECT FROM 2022 **SEMESTER : THIRD PATTERN : FULL TIME** End Term Lecture Hours/ Total Continuous Examination **Total Marks (ETA + CA) SUBJECT** Weeks Credits Assessment (CA) S No. SUBJECT TITLE (ETE) CODE Р Т Т Р L Renewable and Non-renewable DEEC301 **Energy Generation Electrical Circuits** DEEC302 Electrical and Electronics DEEC303 Measurement DC Machine and Transformer DEEC304 **Basic Electronics** DEEC305 100\* Values & Ethics\* DAUC301 Renewable and Non-renewable DEEC311 Energy Generation Laboratory Electrical Circuits Laboratory DEEC312 Electrical and Electronics DEEC313 Measurement Laboratory DC Machine and Transformer DEEC314 Laboratory Basic Electronics Laboratory DEEC315 Development of life skills-I DHSC311 Total Credits Total Mark

## USHA MARTIN UNIVERSITY, JHARKHAND TEACHING AND EXAMINATION SCHEME FOR DIPLOMA

## **COURSE NAME : ELECTRICAL AND ELECTRONICS ENGINEERING GROUP**

## **DURATION OF COURSE : 6 SEMESTERS**

## WITH EFFECT FROM 2022

**SEMESTER : FOURTH** 

## **PATTERN : FULL TIME**

S No.	SUBJECT TITLE	SUBJECT CODE	Lecture Hours/ Weeks		Total Credits	End Term Examination (ETE)	Continuous Assessme nt(CA)		Total Marks (ETA + CA)	
			L	Т	Р			Т	Р	
1	Fundamentals of Power Electronics	DEEC401	3	0	0	03	60	25	15	100
2	Electric Power Transmission and Distribution	DEEC402	3	0	0	03	60	25	15	100
3	AC Machine	DEEC403	3	0	0	03	60	25	15	100
4	Elective I	DEEE404A/B/C	3	0	0	03	60	25	15	100
5	Elective II	DEEE405A/B/C	3	0	0	03	60	25	15	100
6	Fundamentals of Power Electronics Laboratory	DEEC411	0	0	2	01	25	0	25	50
7	Electric Power Transmission and Distribution Laboratory	DEEC412	0	0	2	01	25		25	50
8	AC Machine Laboratory	DEEC413	0	0	2	01	25		25	50
9	Elective I Laboratory	DEEE414A/B/C	0	0	4	01	25	,	25	50
10	Elective II Laboratory	DEEE415 A/B/C	0	0	4	01	25		25	50
			20	T	OTAL MA	RKS	750			

## USHA MARTIN UNIVERSITY, JHARKHAND TEACHING AND EXAMINATION SCHEME FOR DIPLOMA

**COURSE NAME : ELECTRICAL AND ELECTRONICS ENGINEERING GROUP** 

# **DURATION OF COURSE : 6 SEMESTERS**

# WITH EFFECT FROM 2022

**SEMESTER : FIFTH** 

#### **PATTERN : FULL TIME**

S	SUBJECT TITLE	SUBJECT CODE	Lecture Hours/ Weeks			Total Credits	End Term Examination	Continuous Assessment (CA)		Total Marks (ETA + CA)
110.			L	Т	Р			Т	Р	
1	Microcontroller Applications	DEEC501	3	0	0	03	60	25	15	100
2	Control System	DEEC502	3	0	0	03	60	25	15	100
3	Elective III	DEEE503A/B/C	3	0	0	03	60	25	15	100
3	Elective IV	DEEE504A/B/C	3	0	0	03	60	25	15	100
4	Open Elective I	DOEC***	3	0	0	03	60	25	15	100
5	Essence of Indian Knowledge & Tradition*	DAUC511	2	0	0	00	60	25	15	100*
6	Microcontroller Applications Laboratory	DEEC511	0	0	2	01	25	25		50
7	Control System Laboratory	DEEC512	0	0	2	01	25	2	5	50
8	Elective III Laboratory	DEEE513A/B/C	0	0	2	01	25	2	5	50
8	Elective IV Laboratory	DEEE514A/B/C	0	0	2	01	25	2	5	50
10	Project –I	DPRW511	0	0	0	03	25	2	5	50
	ТО			22	0 1	TOTAL MA	RKS	750		

USHA MARTIN UNIVERSITY, JHARKHAND										
TEACHING AND EXAMINATION SCHEME FOR DIPLOMA										
COURSE NAME : ELECTRICAL AND ELECTRONICS ENGINEERING GROUP										
DURATION OF COURSE : 6 SEMESTERS    WITH EFFECT FROM 2022										
SEMESTER : SIXTH PATTERN : FULL TIME										
S No	SUBJECT TITLE	SUBJECT CODE	Lectur	e Hour	s/ Weeks	Total Credits	End Term Examination (ETE)	Continuous Assessment (CA)		Total Marks (ETA +
•		CODE	L	Т	Р			Т	Р	<b>CA</b> )
1	Building Electrification	DEEC601	3	0	0	3	60	25	15	100
2	Entrepreneurship and Start -ups	DEEC602	3	0	0	3	60	25	15	100
3	Open Elective II	DOEC***	3	0	0	3	60	25	15	100
4	Open Elective III	DOEC***	3	0	0	3	60	25	15	100
5	Indian Constitution*	DAUC611	2	0	0	00	60	25	15	100*
6	Building Electrification Lab	DEEC611	0	0	2	1	25	2	5	50
7	Project – II	DPRW611	0	0	0	3	25	2	25	50
8	Seminar	DSER601	1	0	0	1	25	2	25	50
			17		TOTAL MA	RKS	550			

\*Audit Course – Non-credit

#### **EXAMINATION SYSTEM:**

- a. Continuous Assessment of Theory courses (40 Marks):
  - The Continuous Assessment in respective theory subjects shall comprise of Mid-term tests/ class test,quizzes, assignments and regularity in each of the subjects offered.
  - Mid-term test/class tests, quizzes, semester reports and/or assignments in each course shall carry 40 Marks. Out of which 25 marks shall be for Mid-term test / class tests, 10 marks for quiz/assignments and 5 marks for regularity.
  - iii. The semester report(s) and/or assignment(s) shall be submitted by the students to the teachers concerned, by a date fixed by the Head of the Faculty of Engineering and Applied Science. After evaluation of Mid-term test /semester report(s) and/or assignment(s), the teacher concerned shall submit the marks to the Controller of Examination.
  - iv. The marks obtained in mid-term test shall be displayed on the Notice-Board.

#### **b.** End Semester Examination and evaluation of Theory courses (60 marks):

- The question papers shall be set and the answer-scripts shall be evaluated by the examiners/evaluators duly assigned by the Controller of Examination (COE) of the University. After evaluation of End Semester answer script, the teacher concerned shall submit the marks to the Controller of Examination.
- ii. In case of any objection by a student in the evaluation, the same shall be looked after by the **moderation committee** duly constituted by the order of the Vice Chancellor. The chairman of the committee with its recommendation may order for the scrutiny of the answer sheets. The decision of the moderation committee will be final in any case.
- iii. Where candidate fails to take End Semester examination in any one or more courses/subjects or having taken the examination, has but failed to secure the minimum pass marks in any one or more courses/subjects or in the aggregate, his total marks in the Continuous assessment for the respective subjects shall be carried forward to the subsequent assessment.
- c. Continuous Assessment and End Semester Examination and evaluation of Laboratory/Practical Courses:
  - Each laboratory course is equivalent to 1 or 2 credits carrying 50 marks each.
    Out of 50 marks, 25 marks will be continuous assessment and 25 marks will be End Semester Examination and evaluation.
  - Continuous assessment of Practical course will be based on Lab Files/Record, viva-voce and Attendance whichcarries 10, 10 and 5 marks respectively.

iii. End semester examination will be based on evaluation of Practical programs carrying 25 marks.

#### d. Major Project and Viva-voce\*:

- i. Major Project and Viva-voce is an integral part of Diploma in Electrical and Electronics Programme. Diploma in Electrical and Electronics students are required to undertake Major Project for a period of one semester in the university. Major Project is a part of the Diploma in Electrical and Electronics VI Semester examination, equivalent to 2 credits carrying 50 marks.
- ii. The topic/title of the Major Project and the name of the supervisor earmarked shall be approved by Project Guide by an Internal Project Guide from the University. Each student shall be required to prepare Monthly Progress Report duly signed by the project guide and submit it to the Head of the Department on the last date of every month. Every Diploma in Electrical and Electronics student shall also be required to prepare a Project Report/Dissertation under the supervision of a Project Guide.
- iii. Final Project Report shall be submitted to the Head of the Department duly signed by the Project Guide, minimum in triplicate on or before a specified date fixed for this purpose of evaluation by the Head of the Department. Students are expected to maintain academic integrity of the submitted project report.
- iv. During End-semester evaluation, every student shall be required to make a presentation of his/her project report, including execution of Project work undertaken by him/her during the semester before the duly constituted committee formed by the Head of the department.
- v. Each student may be asked to present Synopsis of the Project Study before the members of the Faculty for consideration and finalization of Project Study Title.
- vi. Once the project report is submitted to and approved by the project guide, the same shall be finally examined by an external examiner and internal examiner(s). The external examiner shall evaluate it independently out of 25 marks. The internal examiner(s) shall evaluate it out of 25 marks (average of the marks will be counted if more than one internal examiner remains present). Both external and internal examiners shall evaluate on the basis of project report which carries 10 marks, presentation of the project work which carries 10 marks and viva voce which carries 5 marks.

### IX. COURSE STRUCTURE AND SCHEME OF EXAMINATION

a) Diploma in Electrical and Electronics Engineering Regular program shall consist

of **126 Credits** from various courses / subject divided into six semester of the diploma Lateral entry programme shall consist of **80 credits** from various courses/ divided into four semester. Such courses shall be grouped into core courses and Elective courses.

**b)** The elective courses are divided into four groups among  $4^{\text{TH}}$  and  $5^{\text{TH}}$ Semester. Elective courses in 4th semester(Elective I and Elective II) and elective courses in  $5^{\text{th}}$  semester (Elective III and elective IV). Elective courses from both the groups will be only theoretical courses.

## X. SCRIPT AND DURATION OF EXAMINATIONS:

- i. Except when otherwise directed by the Ordinances or by the COE, every candidate shall answer question in English language in the Mid-term and End-term examinations in the prescribed answer script furnished by the University only.
- ii. Examination duration of each individual subject in mid -term test shall be of one hour and thirty minutes.
- Examination duration of each individual subject in End-Term Examination shall be of three hours. The duration of the final End-Term practical examination shall also be of three hours.

#### XI. EVALUATION PATTERN

- i. The UGC 10-point grading system is adopted for Diploma in Electrical and Electronics Programme under CBCS in UMU. The University adopts the absolute method of grading whereby marks are converted to grades based on pre-determined class intervals. The Table Below provide the details of Letter Grade, Grade Point, Pre-determined class intervals (Range of Marks %); SGPA range and the conventional equivalent in terms of divisions. All calculations of SGPA andCGPA shall be rounded off to two decimal places. In conventional equivalent, the First Division with Distinction is applicable only in case of single attempt else it shall be treated as Fist Division.
- ii. **Grade Assignment Table:** Table illustrating the details and pattern of grading and calculation of SGPA/CGPA. This Table shall be printed at the back of Consolidated Transcript.

Letter (Grade )	Merit Remark	Grad e Point	Range of Marks (%)	SGPA	Conventiona lEquivalent
0	Outstanding	10	90.00 - 100.00	9.00 - 10.00	First Division
A+	Excellent	9	75.00 - 89.99	7.50 - 8.99	Distinction
A	Very Good	8	60.00 - 74.99	6.00 - 7.49	First Division
B+	Good	7	55.00 - 59.99	5.50 - 5.99	Second Division
В	Above Average	6	50.00 - 54.99	5.00 - 5.49	
C	Average	5	45.00 - 49.99	4.50 - 4.99	Pass
Р	Pass	4	40.00 - 44.99	4.00 -4.49	
F	Fail	0	Below 40	< 4.00	Fail
Ab	Absent	0			Ab
F*	Unfair Means	0			F*

Conversion formula: Percentage of Marks = (CGPA) X 10

- iii. **Transcript:** Based on the grades earned, a grade certificate shall be issued to all the registered students after everysemester. The grade certificate shall display the course details (code, title, no. of credits, grades secured) along withSGPA of that semester and CGPA earned till that semester. The students shall be issued transcript for each semester and a consolidated transcript indicating the performance in all the semesters.
- iv. The consolidated report does not reflect the actual percentage of marks scored by the student in a specific examination due to unequal credit values of the papers or the Grade / Grade Points which are assigned for a rangemarks secured in each subject / course based on ten-point scale. However, to get percentage of marks, multiply the CGPA with 10.

Percentage of Marks = (CGPA) X 10

## v. Award of Grade:

- a) The UGC recommended system for awarding the grades and CGPA under Choice Based Credit System (CBCS) has been adopted.
- b) All assessments of a course shall be done on operative marks basis and conversion of these marks to letter grades based on absolute grading system. However, for the purpose of reporting the performance of a student, these letter

grades each carrying certain points shall be awarded as per the range of total marks obtained by the student as grade point as per Grade Assignment Table.

- c) Credit Points are derived for all courses/subjects based on the product of credits allocated and grade points secured for each subject/ course after evaluation.
- d) At the end of a semester, based on the evaluation report, a student shall be awarded a letter grade in each course.
- e) Passing of a course/subject shall be decided on the combined result of a course/subject i.e. on the combined result of Continuous Assessment and End Term Examination which means securing 40% overall.
- f) At the end of programme, student shall be declared successful only when getting CGPA >=5.00 and having F/Ab/F\* Grade in none of the required courses in any of the semester and fulfills the mandatory requirement of non-credit courses (if any).
- g) The programme maximum time for completion shall be additional two (2) years (4 semesters) irrespective of the duration of the programme of study.
- h) University shall devise a separate mechanism to acknowledge and reward academic excellence in all the offeredprogramme while awarding degree to the qualified students at the time of convocation.

#### vi. Computation of SGPA and CGPA:

- a) Adherence to the UGC recommendation for calculation of SGPA and CGPA
- b) Grade Letter and Grade Points for each subject/course are allocated after evaluating 100% of all course components.
- c) The SGPA is the ratio of sum of the product (credit point) of the number of credits with the grade points scoredby a student in all the courses taken by a student and the sum of the number of credits of all the courses undertaken by a student.
- d) The SGPA is computed using the following formula i.e. SGPA (Si) =  $\Sigma(C_i \times G_i) / \Sigma C_i$
- e) Where  $C_i$  is the number of credits of the i<sup>th</sup> course and Gi is the grade point scored by the student in the i<sup>th</sup> course.
- f) The CGPA is also calculated in the same manner taking into account all the courses undertaken by a student over all the semesters of a programme i.e.  $CGPA = \Sigma(C_i \ge S_i) / \Sigma C_i$
- g) Where Si is the SGPA of the  $1^{st}$  semester and  $C_i$  is the total number of credits in that semester.
- h) The SGPA and CGPA shall be rounded off to 2 decimal places and reported in the transcripts.

i) The CGPA grade shall be awarded only after successfully passing all the courses required for the award of degree.