ವಿಶ್ವೇಶ್ವರಯ್ಯ ತಾಂತ್ರಿಕ ವಿಶ್ವವಿದ್ಯಾಲಯ
ವಿಟಿಯು ಅಧಿನಿಯಮ ೧೯೯೪ರ ಅಡಿಯಲ್ಲಿ ಕರ್ನಾಟಕ ಸರ್ಕಾರದಿಂದ ಸ್ಥಾಪಿತವಾದ ರಾಜ್ಯವಿಶ್ವವಿದ್ಯಾಲಯ
VISVESVARAYA TECHNOLOGICAL UNIVERSITY
State University of Government of Karnataka Established as per the VTU Act, 1994 "JnanaSangama" Belagavi-590018, Karnataka, India

Phone: (0831) 2498100
Fax: (0831) 2405467

REGISTRAR

REF: VTU/BGM/21EE741/646/2024-25/ 3689

DATE: 28 OCT 2024

CIRCULAR

Subject: SEE details of course/ subject 21EE741-CAED regarding...

Reference:

- email from the Chairperson Board of Studies in EEE VTU Belagavi
- The Hon'ble Vice-Chancellor's approval Dated 28.10.2024

Sir/ Madam,

Regarding the subject mentioned above, the following clarifications are provided for the conduct of the Semester End Examination (SEE) for the course **21EE741 - Computer Aided Electrical Drawing**;

1. Course Structure: 2 lectures, 0 tutorials, 2 practical sessions (3 credits)
2. Semester End Examination (SEE) Format:
    a. Type: Practical/batch-wise
    b. Duration: 3 hours
    c. Maximum Marks: 100 (scaled down to 50 marks)

The revised Continuous Internal Evaluation (CIE) and Semester End Examination (SEE) details for the course/subject 21EE741-Computer Aided Electrical Drawing is mentioned in the attached syllabus copy for reference.

All Principals of affiliated Engineering Colleges are informed to:

- Disseminate the updated circular and syllabus to concerned faculty members and students.
- Ensure timely implementation of the revised syllabus.

Sd/-
Registrar

To,

The Principals of Engineering Colleges are under the ambit of the University.

Copy to:

- The Hon'ble Vice-Chancellor through the secretary to Vice-Chancellor for information
- The Registrar (Evaluation), VTU Belagavi for information
- The Chairperson and Members of BoS VTU Belagavi for information
- The Chairperson and Members of the BoE, VTU Belagavi for information
- The Special Officer QPDS Examination section VTU Belagavi
- Office Copy

REGISTRAR

Computer-Aided Electrical Drawing			
Course Code	**21EE741**	CIE Marks	50
Teaching Hours/Week (L:T:P: S)	2:0:2:0	SEE Marks	50
Total Hours of Pedagogy	40	Total Marks	100
Credits	03	Exam Hours	03

Course objectives:

- To discuss the terminology of DC and AC armature windings.
- To discuss design and procedure to draw armature winding diagrams for DC and AC machines.
- To discuss the substation equipment, their location in a substation and development of a layout for substation.(4)To discuss different sectional views of transformers, DC machine, its parts and alternator and itsparts.
- To explain development of sectional views of Transformers, DC machine and alternators usingthe design data,sketches.

Teaching-Learning Process (General Instructions)

These are sample Strategies, which teacher can use to accelerate the attainment of the various course outcomes.

1. Lecturer method (L) needs not to be only traditional lecture method, but alternative effective teaching methodscould be adopted to attain the outcomes.
2. Use of Video/Animation to explain functioning of various concepts.
3. Encourage collaborative (Group Learning) Learning in the class.
4. Ask at least three HOT (Higher order Thinking) questions in the class, which promotes critical thinking.
5. Adopt Problem Based Learning (PBL), which fosters students' Analytical skills, develop design thinking skillssuch as the ability to design, evaluate, generalize, and analyse information rather than simply recall it.
6. Introduce Topics in manifold representations.
7. Show the different ways to solve the same problem with different circuits/logic and encourage the students tocome up with their own creative ways to solve them.
8. Discuss how every concept can be applied to the real world - and when that's possible, it helps improve the students' understanding.

Suitable CAD software can be used for drawings

Module-1

Winding Diagrams:

a) Developed Winding Diagrams of D.C. Machines: Simplex Double Layer Lap and Wave Windings.

b) Developed Winding Diagrams of A.C. Machines:

c) Integral and Fractional Slot Double Layer Three Phase Lap and Wave Windings.

d) Single Layer Windings – Un-Bifurcated 2 and 3 Tier Windings, Mush Windings, Bifurcated 3 Tier Windings.

Teaching-Learning Process	Chalk and Board, Power Point Presentation.

Module-2

Single Line Diagrams: Single Line Diagrams of Generating Stations and Substations Covering Incoming Circuits, Outgoing Circuits, Busbar Arrangements (Single, Sectionalised Single, Main and Transfer, Double Bus Double Breaker, Sectionalised Double Bus, One and a Half Circuit Breaker Arrangement, Ring Main),Power Transformers, Circuit Breakers, Isolators, Earthing Switches, InstrumentTransformers, Surge or Lightning Arresters, Communication Devices (Power- Line Carrier) and Line Trap.

Teaching-Learning Process	Chalk and Board, Power Point Presentation.

Module-3

Electrical Machine Assembly Drawings Using Design Data, Sketches or Both: Transformers - Sectional ViewsOf Single And Three Phase Core And Shell Type Transformers.	
Teaching-Learning Process	Chalk and Board, Power Point Presentation.
Module-4	
Electrical Machine Assembly Drawings Using Design Data, Sketches or Both: D.C. Machine - Sectional Viewsof Yoke with Poles, Armature and Commutator dealt separately.	
Teaching-Learning Process	Chalk and Board, Power Point Presentation.
Module-5	
Electrical Machine Assembly Drawings Using Design Data, Sketches or Both: Alternator – Sectional Views ofStator and Rotor dealt separately.	
Teaching-Learning Process	Chalk and Board, Power Point Presentation.

Course outcome (Course Skill Set)

At the end of the course, the student will be able to :

1) Develop armature winding diagram for DC and AC machines.
2) Develop a Single Line Diagram of Generating Stations and substations using the standard symbols.
3) Construct sectional views of core type and shell type transformers using the design data.
4) Construct sectional views of assembled DC and AC machines and their parts using the design data or thesketches.

Assessment Details (both CIE and SEE)

The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. TheminimumpassingmarkfortheCIEis40%ofthemaximummarks(20marksoutof50).A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/ course if the student secures not less than 35% (18 Marks out of 50)in the semester-end examination (SEE), and a minimum of 40% (40 marks out of 100) in the sum total of the CIE (Continuous Internal Evaluation) and SEE(Semester End Examination)taken together

Continuous Internal Assessment:

The CIE marks awarded in case of CAED shall be based on weekly evaluation of class work (Sketching and Computer Aided Drawing). Each drawing shall be evaluated and marks of all the drawing sheets are added and scaled down to 25 marks.

One test shall be conducted for 100 marks and marks scored shall be scaled down to 25 marks. The minimum passing marks required for CIE is 40% of the Maximum marks.

Semester End Examination:

1. **Internal and External Examiners are appointed by the University**
2. **Examination will be conducted batch wise. SEE will be conducted as per the scheduled timetable, and duration of the examination will be 03 hours per batch**
3. **Both Internal and External examiners have to set the question papers as per the following instructions**

   A. The question paper will have two parts, PART–A and PART –B.
   B. Each part is for 50 marks.
   C. Part A is earmarked for Modules 1 and 2. Questions 1 and 2 of PART –A, will be only on DC windings or only on AC windings. Students have to answer anyone of them. The mark prescribed

is 35.

D. Question 3 of PART – A, covering module 2 is compulsory. The mark prescribed is 15
E. Part B is for Modules 3,4 and 5.
F. Questions 4 and 5 will cover any two modules of modules 3, 4and5. Students have to answer any one of them.The mark prescribed is 50.
G. Minimum passing marks required for SEE is 35% of maximum marks
H. The sum of part A and part B scores of the student shall be scaled down to 50 marks

Suggested Learning Resources:

1. A course in Electrical Machine design, A. K. Sawhney, DhanpatRai 6th Edition, 2013.

Electrical Engineering Drawing, K. L. Narang, Satya Prakashan, 2014.

Activity Based Learning (Suggested Activities in Class)/ Practical Based learning

Activity Based Learning, Quizzes, Seminars.

Electrical Machine Assembly Drawings Using Design Data, Sketches or Both: D.C. Machine - Sectional Viewsof Yoke with Poles, Armature and Commutator dealt separately.	
Teaching-Learning Process	Chalk and Board, Power Point Presentation.
Module-5	
Electrical Machine Assembly Drawings Using Design Data, Sketches or Both: Alternator – Sectional Views ofStator and Rotor dealt separately.	
Teaching-Learning Process	Chalk and Board, Power Point Presentation.

Course outcome (Course Skill Set)

At the end of the course the student will be able to :

(1) Develop armature winding diagram for DC and AC machines.

(2) Develop a Single Line Diagram of Generating Stations and substation using the standard symbols.(3)Construct sectional views of core type and shell type transformers using the design data.

(4)Construct sectional views of assembled DC and AC machine and their parts using the design data or the sketches.

Assessment Details (both CIE and SEE)

The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 40% of the maximum marks (20 marks out of 50). A student shall be deemedto have satisfied the academic requirements and earned the credits allotted to each subject/ course if the student secures not less than 35% (18 Marks out of 50) in the semester-end examination(SEE), and a minimum of 40% (40marks out of 100) in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together

Continuous Internal Evaluation:

Three Unit Tests each of **20 Marks (duration 01 hour)**

1. First test at the end of 5th week of the semester
2. Second test at the end of the 10th week of the semester
3. Third test at the end of the 15th week of the semesterTwo assignments each of **10 Marks**

4. First assignment at the end of 4th week of the semester
5. Second assignment at the end of 9th week of the semester

Group discussion/Seminar/quiz any one of three suitably planned to attain the COs and POs for **20 Marks (duration 01 hours)**

6. At the end of the 13th week of the semester

The sum of three tests, two assignments, and quiz/seminar/group discussion will be out of 100 marks and will be

scaled down to 50 marks

(to have less stressed CIE, the portion of the syllabus should not be common /repeated for any of the methods ofthe CIE. Each method of CIE should have a different syllabus portion of the course).

CIE methods /question paper is designed to attain the different levels of Bloom's taxonomy as per theoutcome defined for the course.