



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



**Prof. B. E. Rangaswamy, Ph.D**  
REGISTRAR

Phone: (0831) 249810  
Fax: (0831) 240546

REF: VTU/BGM/BoS/600/2024-25/ 1875

DATE:

25 JUL 2024

**CIRCULAR**

Dear Sir/ Madam

**Subject:** Typo error corrected for SEE of the course/subject 21CV731-Advanced Design of RCC and Steel Structure

**Reference:**

1. The Chairperson in BOS CV for UG Programs VTU Belagavi recommendation dated 24.07.2024
2. The Hon'ble Vice-Chancellor's approval dated: 25.07.2024

A typographical error in the Semester End Evaluation (SEE) for course **21CV731-Advanced Design of RCC and Steel Structures** has been corrected. The updated syllabus for this course is attached to this circular for your reference.

All principals and affiliated engineering colleges under the university's jurisdiction are requested to update this information in their circulars for all concerned students and staff.

Enclosure: Updated syllabus as mentioned above.

Sd/-


Registrar

To,

1. Principals of all Engineering Colleges under the ambit of the University
2. The Chairpersons/Program Coordinators of University departments @ Kalaburgi, Belagavi, Bengaluru, Mysuru and Muddenhalli

Copy to

- The Hon'ble Vice-Chancellor through the secretary to VC for information
- The Registrar (Evaluation) for information and needful
- The Director, ITI SMU VTU Belagavi for information and make arrangements to upload the circular on the VTU web portal
- The Special Officer QPDS section, VTU Examination Section VTU Belagavi for information
- Office Copy

  
25/07/24  
**REGISTRAR**  
7.

VII Semester

<b>ADVANCED DESIGN OF RCC AND STEEL STRUCTURES</b>			
Course Code	<b>21CV731</b>	CIE Marks	50
Teaching Hours/Week (L:T:P: S)	2+2+0	SEE Marks	50
Total Hours of Pedagogy	40	Total Marks	100
Credits	3	Exam Hours	3
<p><b>Course objectives:</b> This course will enable students to</p> <ol style="list-style-type: none"> <li>1. Provide basic knowledge in the areas of limit state method and concept of design of RC and Steel structures</li> <li>2. Identify, formulate and solve engineering problems in RC and Steel Structures</li> <li>3. Give procedural knowledge to design a system, component or process as per needs and specifications of RC Structures like Retaining wall, Footing, Water tanks, Portal Frames and Steel Structures like Roof Truss, Plate Girder and Gantry Girder.</li> <li>4. Imbibe the culture of professional and ethical responsibilities by following codal provisions in the analysis, design of RC and Steel Structures.</li> <li>5. Provide factual knowledge on analysis and design of RC Structural elements, who can participate and succeed in competitive examinations.</li> </ol>			
<p><b>Teaching-Learning Process (General Instructions)</b> These are sample Strategies, which teacher can use to accelerate the attainment of the various course outcomes.</p> <ol style="list-style-type: none"> <li>1. Chalk &amp; Talk</li> <li>2. Demonstration using relevant models / drawings</li> <li>3. Assignment to measure, draw and estimate of an existing civil engineering entity</li> <li>4. Demonstration of 3-D models of Civil Engineering Entities, PPT Presentations</li> <li>5. Site Visits, Expert Lectures</li> </ol>			
<b>Module-1</b>			
<p><b>Footings:</b> Design of rectangular slab, slab-beam type combined footing.  <b>Retaining Walls:</b> Design of cantilever Retaining wall. Design concept of counter fort retaining wall.  <b>Water Tanks:</b> Design of circular water tanks resting on ground (Rigid and Flexible base). Design of rectangular water tanks resting on ground. <b>As per IS: 3370 (Part IV).</b>  <b>Portal frames:</b> Design of portal frames with fixed and hinged based supports.</p>			
<b>Teaching-Learning Process</b>	Chalk & Talk, PPT presentation, Youtube videos, Nearby construction site visits.		
<b>Module-2</b>			
<p><b>Roof Truss:</b> Design of roof truss for different cases of loading, forces in members to given. (Bolted Connection only)  <b>Plate Girder:</b> Design of welded plate girder with intermediate stiffener, bearing stiffener and necessary checks  <b>Gantry Girder:</b> Design of gantry girder with all necessary checks.</p>			
<b>Teaching-Learning Process</b>	Chalk & Talk, PPT presentation, Youtube videos, Nearby construction site visits.		
<p><b>Course outcome (Course Skill Set)</b> At the end of the course the student will be able to :</p> <ol style="list-style-type: none"> <li>1. Students will acquire the basic knowledge in design of RCC and Steel Structures.</li> <li>2. Students will have the ability to follow design procedures as per codal provisions and skills to arrive at structurally safe RC and Steel members.</li> </ol>			

### **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 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 Evaluation:**

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

1. First test at the end of 5<sup>th</sup> week of the semester
2. Second test at the end of the 10<sup>th</sup> week of the semester
3. Third test at the end of the 15<sup>th</sup> week of the semester

Two assignments each of **10 Marks**

4. First assignment at the end of 4<sup>th</sup> week of the semester
5. Second assignment at the end of 9<sup>th</sup> 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 13<sup>th</sup> 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 of the 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 the outcome defined for the course.**

#### **Semester End Examination:**

Theory SEE will be conducted by University as per the scheduled timetable, with common question papers for the subject (**duration 03 hours**)

1. The question paper will have four questions. Each question is set for 50 marks.
2. There will be 2 questions from each module. Each of the two questions under a module (with a maximum of 3 sub-questions), **should have a mix of topics** under that module.

The students have to answer 2 full questions, selecting one full question from each module

#### **Suggested Learning Resources:**

##### **Text Books**

1. N Krishna Raju, "**Structural Design and Drawing of Reinforced Concrete and Steel**", University Press
2. Subramanian N, "**Design of Steel Structures**", Oxford university Press, New Delhi
3. K S Duggal, "**Design of Steel Structures**", Tata McGraw Hill, New Delhi

##### **Reference Books:**

1. Charles E Salman, Johnson & Mathas, "**Steel Structure Design and Behavior**", Pearson Publications
2. Nether Cot, et.al, "**Behavior and Design of Steel Structures to EC -III**", CRC Press
3. P C Verghese, "**Limit State Design of Reinforced Concrete**", PHI Publications, New Delhi
4. S N Sinha, "**Reinforced Concrete Design**", McGraw Hill Publication

##### **Web links and Video Lectures (e-Resources):**

- <https://archive.nptel.ac.in/courses/105/104/105104162/>
- <https://www.youtube.com/watch?v=6LZiPNAPA88>
- <https://archive.nptel.ac.in/courses/105/105/105105105/>
- <https://www.youtube.com/watch?v=lheoBL2QaqU>
- <https://www.youtube.com/watch?v=Ch2vAzvXbKI>
- <https://www.youtube.com/watch?v=Om6lCuhwBo0>

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

- Site visit to understand design and construction of structural elements
- Design of structural elements using Excel
- Design of structural elements using software's