



### Course Details

|                   |                                |                 |                |
|-------------------|--------------------------------|-----------------|----------------|
| Subject Title :   | <b>Power System Analysis-2</b> |                 |                |
| Subject Code :    | <b>18EE71</b>                  | Academic Year : | <b>2021-22</b> |
| Semester :        | <b>7</b>                       | Section :       | <b>A</b>       |
| Core / Elective : | <b>Core</b>                    | Type :          | <b>Theory</b>  |

### Scheme of Teaching & Marks

|                       |                  |                  |           |              |            |
|-----------------------|------------------|------------------|-----------|--------------|------------|
| Contact Hours/ week : | <b>5</b>         | Lecture :        | <b>3</b>  | Tutorials :  | <b>2</b>   |
| Max. IA Marks:        | <b>40</b>        | Max. Exam Marks: | <b>60</b> | Total Marks: | <b>100</b> |
| Max. IA Marks: ( 40)  | Assignment Marks |                  | <b>10</b> | Test Marks   | <b>30</b>  |

### Pass Marks in the Course

|                     |           |                        |           |                   |           |
|---------------------|-----------|------------------------|-----------|-------------------|-----------|
| Min. IA Marks (%) : | <b>40</b> | Min. Exam. Marks (%) : | <b>35</b> | Total Marks (%) : | <b>40</b> |
| Min. IA Marks:      | <b>16</b> | Min. Exam Marks:       | <b>21</b> | Total Marks:      | <b>40</b> |

### Threshold Values for Attainment Calculation

| Attainment Level : | 3   | (%) | 2   | (%) | 1   | (%) | Total Students |
|--------------------|-----|-----|-----|-----|-----|-----|----------------|
| IA :               | > = | 60  | > = | 50  | > = | 40  | <b>64</b>      |
| Ex :               | > = | 60  | > = | 50  | > = | 40  |                |
| Overall :          | CIE | 60  | SEE | 40  | CES | 0   |                |

### Course Coordinator

|                 |                                                              |
|-----------------|--------------------------------------------------------------|
| Name :          | <b>Mr. Kubera U</b>                                          |
| Designation :   | <b>Assistant Professor</b>                                   |
| email ID :      | <a href="mailto:kubera@sjbit.edu.in">kubera@sjbit.edu.in</a> |
| Specilisation : | <b>Power Systems</b>                                         |

### List of Course out comes (CO's)

No. of CO's  
**5**

|      |                                                                                   |
|------|-----------------------------------------------------------------------------------|
| CO-1 | Formulate network matrices and models for solving load flow problems              |
| CO-2 | Perform power flow analysis of power systems using numerical iterative techniques |
| CO-3 | Solve issues of economic load dispatch and unit commitment problems               |
| CO-4 | Analyze short circuit faults in power system networks using bus impedance matrix  |
| CO-5 | Apply numerical techniques to solve swing equation for stability analysis         |
|      |                                                                                   |

### Course Instructor Report :

- \* This is a problematic course, more practice of problems is needed.
- \* Understanding of each topics is essential for solving problems



# SJB INSTITUTE OF TECHNOLOGY

BENGALURU 560060

Department of Electrical and Electronics Engineering



|                     |                         |          |   |               |         |
|---------------------|-------------------------|----------|---|---------------|---------|
| Subject Name:       | Power System Analysis-2 |          |   |               |         |
| Subject code        | 18EE71                  | Semester | 7 | Section       | A       |
| Direct Assessment : | CIE, SEE                |          |   | Max. Marks    | 100     |
| Faculty name:       | Mr. Kubera U            |          |   | Academic Year | 2021-22 |

## CO CIE Attainment Calculation

| Course Outcomes         | 1  | 2  | 3  | 4  | 5  |
|-------------------------|----|----|----|----|----|
| Course Outcome Target   | 40 | 40 | 40 | 40 | 40 |
| Total Students          | 64 | 64 | 64 | 64 | 64 |
| Students Above Target   | 61 | 61 | 63 | 45 | 58 |
| CO Assesment (%)        | 95 | 95 | 98 | 70 | 91 |
| Course Attainment Level | 3  | 3  | 3  | 3  | 3  |

## CO SEE Attainment Calculation

## SEE TARGET

|                       |         |    |    |       |    |
|-----------------------|---------|----|----|-------|----|
| Students Above Target | 44      | 25 | 8  | >=40% | 24 |
| CO Assesment (%)      | 69      | 39 | 13 | >=50% | 30 |
| CO Attainment Level   | 3       | 0  | 0  | >=60% | 36 |
| CIE TARGET %          | 40      | 50 | 60 |       |    |
| >=40%                 | LEVEL 1 |    |    |       |    |
| >=50%                 | LEVEL 2 |    |    |       |    |
| >=60%                 | LEVEL 3 |    |    |       |    |

| CO Attainment |       | CIE   |         |       | SEE   |         |       | CES   |         |       | Total  |        |       |
|---------------|-------|-------|---------|-------|-------|---------|-------|-------|---------|-------|--------|--------|-------|
| SI            | CO-No | Total | Studnts | ATMNT | Total | Studnts | ATMNT | Total | Studnts | ATMNT | CIE-60 | SEE-40 | CES-0 |
| 1             | CO1   | 64    | 61      | 3     | 64    | 44      | 3     | 185   | 64      | 2.9   |        |        | 3.0   |
| 2             | CO2   | 64    | 61      | 3     | 64    | 44      | 3     | 177   | 64      | 2.8   |        |        | 3.0   |
| 3             | CO3   | 64    | 63      | 3     | 64    | 44      | 3     | 184   | 64      | 2.9   |        |        | 3.0   |
| 4             | CO4   | 64    | 45      | 3     | 64    | 44      | 3     | 183   | 64      | 2.9   |        |        | 3.0   |
| 5             | CO5   | 64    | 58      | 3     | 64    | 44      | 3     | 180   | 64      | 2.8   |        |        | 3.0   |

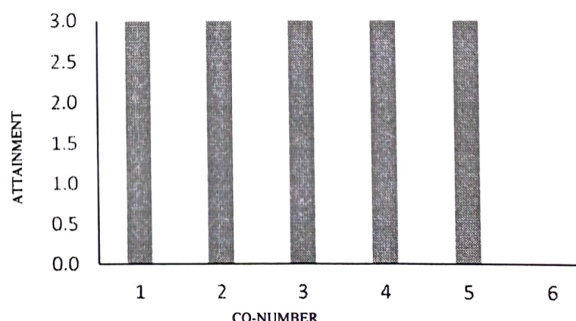
## CO-PO Mapping Table

| PO  | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|-----|---|---|---|---|---|---|---|---|---|----|----|----|
| CO1 | 3 | 3 |   |   |   |   |   |   |   |    |    |    |
| CO2 | 3 | 3 |   |   |   | 2 | 2 |   |   |    |    |    |
| CO3 | 3 | 3 |   |   |   | 2 | 2 |   |   |    |    |    |
| CO4 | 3 | 3 |   |   |   | 2 | 2 |   |   |    |    |    |
| CO5 | 3 | 2 |   |   |   |   |   |   |   |    |    |    |

## PO - Weight and Attainment

|            |     |     |  |  |  |     |     |  |  |  |  |  |
|------------|-----|-----|--|--|--|-----|-----|--|--|--|--|--|
| Total      | 3   | 2.8 |  |  |  | 2   | 2   |  |  |  |  |  |
| Attainment | 3.0 | 3.0 |  |  |  | 3.0 | 3.0 |  |  |  |  |  |
| AT_CES     | 2.8 | 2.8 |  |  |  | 2.8 | 2.8 |  |  |  |  |  |

| CO-NO                   | PSO's Mapping |     |   |   |
|-------------------------|---------------|-----|---|---|
|                         | 1             | 2   | 3 | 4 |
| CO1                     | 3             | 3   |   |   |
| CO2                     | 3             | 2   |   |   |
| CO3                     | 3             | 2   |   |   |
| CO4                     | 3             | 2   |   |   |
| CO5                     | 3             | 2   |   |   |
| PSO-Weight & Attainment |               |     |   |   |
| Total                   | 3             | 2.2 |   |   |
| Attainment              | 3.0           | 3.0 |   |   |
| CES_PSO                 | 2.8           | 2.8 |   |   |





|                                                                                  |  |                                                                                                                                                                                                         |    |          |                   |      |               |           |                      |           |           |           |      |
|----------------------------------------------------------------------------------|--|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|----------|-------------------|------|---------------|-----------|----------------------|-----------|-----------|-----------|------|
|  |  | <div>SJB INSTITUTE OF TECHNOLOGY<br/>BENGALURU 560060<br/>Department of Electrical and Electronics Engineering</div>  |    |          |                   |      |               |           |                      |           |           |           |      |
| Subject Name:                                                                    |  | Power System Analysis-2                                                                                                                                                                                 |    |          |                   |      |               |           | Scheme:CBCS/NON-CBCS |           |           |           |      |
| Subject code                                                                     |  | 18EE71                                                                                                                                                                                                  |    | Semester |                   | 7    | Section       |           | A                    |           | CBCS      |           |      |
| Faculty name:                                                                    |  | Mr. Kubera U                                                                                                                                                                                            |    |          |                   |      | Academic Year |           | 2021-22              |           |           |           |      |
| Passing Marks                                                                    |  | Max.                                                                                                                                                                                                    | %  | Min      | Grade Point Scale |      |               |           |                      |           |           |           |      |
| CIE(IA)                                                                          |  | 40                                                                                                                                                                                                      | 40 | 16       | G-Letter          | O    | S             | A         | B                    | C         | D         | E         | F    |
| SEE(EX)                                                                          |  | 60                                                                                                                                                                                                      | 35 | 21       | G-Point           | 10   | 9             | 8         | 7                    | 6         | 5         | 4         | 0    |
| TOTAL                                                                            |  | 100                                                                                                                                                                                                     | 40 | 40       | % Marks           | ≥ 90 | < 90          | < 80 ≥ 70 | < 70 ≥ 60            | < 60 ≥ 50 | < 50 ≥ 45 | < 45 ≥ 40 | < 40 |

|     |            |     |     |       |        |       |     |
|-----|------------|-----|-----|-------|--------|-------|-----|
| Sl. | USN        | CIE | SEE | Total | Result | CLASS | G-P |
| 1   | 1JB18EE002 | 34  | 21  | 55    | PASS   | SC    | 6   |
| 2   | 1JB18EE003 | 27  | 22  | 49    | PASS   | SC    | 5   |
| 3   | 1JB18EE004 | 31  | 29  | 60    | PASS   | FC    | 7   |
| 4   | 1JB18EE005 | 34  | 27  | 61    | PASS   | FC    | 7   |
| 5   | 1JB18EE006 | 37  | 35  | 72    | PASS   | FD    | 8   |
| 6   | 1JB18EE007 | 32  | 21  | 53    | PASS   | SC    | 6   |
| 7   | 1JB18EE008 | 35  | 24  | 59    | PASS   | SC    | 6   |
| 8   | 1JB18EE009 | 30  | 22  | 52    | PASS   | SC    | 6   |
| 9   | 1JB18EE010 | 35  | 36  | 71    | PASS   | FD    | 8   |
| 10  | 1JB18EE011 | 40  | 42  | 82    | PASS   | FD    | 9   |
| 11  | 1JB18EE012 | 40  | 33  | 73    | PASS   | FD    | 8   |
| 12  | 1JB18EE013 | 32  | 39  | 71    | PASS   | FD    | 8   |
| 13  | 1JB18EE014 | 34  | 35  | 69    | PASS   | FC    | 7   |
| 14  | 1JB18EE015 | 34  | 36  | 70    | PASS   | FD    | 8   |
| 15  | 1JB18EE016 | 34  | 32  | 66    | PASS   | FC    | 7   |
| 16  | 1JB18EE017 | 30  | 23  | 53    | PASS   | SC    | 6   |
| 17  | 1JB18EE018 | 40  | 34  | 74    | PASS   | FD    | 8   |
| 18  | 1JB18EE019 | 40  | 38  | 78    | PASS   | FD    | 8   |
| 6   | 1JB18EE020 | 30  | 29  | 59    | PASS   | SC    | 6   |
| 20  | 1JB18EE021 | 40  | 30  | 70    | PASS   | FD    | 8   |
| 21  | 1JB18EE022 | 38  | 24  | 62    | PASS   | FC    | 7   |
| 22  | 1JB18EE023 | 32  | 26  | 58    | PASS   | SC    | 6   |
| 23  | 1JB18EE024 | 35  | 34  | 69    | PASS   | FC    | 7   |
| 24  | 1JB18EE025 | 40  | 28  | 68    | PASS   | FC    | 7   |
| 25  | 1JB18EE026 | 36  | 39  | 75    | PASS   | FD    | 8   |
| 26  | 1JB18EE027 | 29  | 29  | 58    | PASS   | SC    | 6   |
| 27  | 1JB18EE028 | 40  | 32  | 72    | PASS   | FD    | 8   |
| 28  | 1JB18EE029 | 35  | 29  | 64    | PASS   | FC    | 7   |
| 29  | 1JB18EE030 | 35  | 33  | 68    | PASS   | FC    | 7   |
| 30  | 1JB18EE031 | 36  | 32  | 68    | PASS   | FC    | 7   |
| 31  | 1JB18EE032 | 40  | 48  | 88    | PASS   | FD    | 9   |
| 32  | 1JB18EE033 | 30  | 27  | 57    | PASS   | SC    | 6   |
| 33  | 1JB18EE424 | 29  | 23  | 52    | PASS   | SC    | 6   |
| 34  | 1JB19EE400 | 37  | 33  | 70    | PASS   | FD    | 8   |
| 35  | 1JB19EE401 | 28  | 21  | 49    | PASS   | SC    | 5   |
| 36  | 1JB19EE402 | 28  | 21  | 49    | PASS   | SC    | 5   |
| 37  | 1JB19EE403 | 30  | 37  | 67    | PASS   | FC    | 7   |
| 38  | 1JB19EE404 | 26  | 21  | 47    | PASS   | SC    | 5   |
| 39  | 1JB19EE405 | 29  | 27  | 56    | PASS   | SC    | 6   |
| 40  | 1JB19EE406 | 22  | 21  | 43    | PASS   | SC    | 5   |
| 41  | 1JB19EE407 | 24  | 22  | 46    | PASS   | SC    | 5   |

Result Analysis

|              |      |     |      |   |
|--------------|------|-----|------|---|
| No. Students | PASS | %   | FAIL | % |
| 64           | 64   | 100 | 0    | 0 |

Class obtained and Grade

|              |    |       |        |
|--------------|----|-------|--------|
| No. Students | 64 | %     | GRADE  |
| FD           | 13 | 20.31 | 10,9,8 |
| FC           | 15 | 23.44 | 7      |
| SC           | 36 | 56.25 | 6,5,4  |
| --           | 0  | 0.0   | 0      |

STUDENTS AVERAGE -MARKS

|        |    |        |    |           |    |
|--------|----|--------|----|-----------|----|
| CIE-40 |    | SEE-60 |    | Total-100 |    |
| 2025   | 32 | 1811   | 28 | 3836      | 60 |

Grade - Letter

|                |       |                |    |
|----------------|-------|----------------|----|
| Grade - Letter | Point | No.of Students | %  |
| O              | 10    | 0              | 0  |
| S              | 9     | 2              | 3  |
| A              | 8     | 11             | 17 |
| B              | 7     | 15             | 23 |
| C              | 6     | 24             | 38 |
| D              | 5     | 12             | 19 |
| E              | 4     | 0              | 0  |
| F              | 0     | 0              | 0  |

0 0  
12 2 11 15 24

■ S ■ A ■ B ■ C ■ D ■ E ■ F

Course Coordinator

Mr. Kubera U







SJB INSTITUTE OF TECHNOLOGY

BENGALURU 560060

Department of Electrical and Electronics Engineering



Subject Name:

Power System Analysis-2

Subject code

18EE71

Semester

7

Section

A

Faculty name:

Mr. Kubera U

Academic Year

2021-22

## COURSE EXIT SURVEY

Student Rating in the scale of 1 to 3;

Low=1,Medium=2,High=3

| CO Mapping  | 1  | 2  | 3  | 4  | 5  |    |    |    |    |     |     |     |
|-------------|----|----|----|----|----|----|----|----|----|-----|-----|-----|
| Response No | Q1 | Q2 | Q3 | Q4 | Q5 | Q6 | Q7 | Q8 | Q9 | Q10 | Q11 | Q12 |
| 1           | 3  | 3  | 3  | 3  | 3  |    |    |    |    |     |     |     |
| 2           | 3  | 2  | 1  | 3  | 1  |    |    |    |    |     |     |     |
| 3           | 3  | 3  | 3  | 3  | 3  |    |    |    |    |     |     |     |
| 4           | 2  | 2  | 2  | 2  | 2  |    |    |    |    |     |     |     |
| 5           | 3  | 3  | 3  | 3  | 3  |    |    |    |    |     |     |     |
| 6           | 3  | 3  | 3  | 3  | 3  |    |    |    |    |     |     |     |
| 7           | 2  | 2  | 2  | 2  | 2  |    |    |    |    |     |     |     |
| 8           | 3  | 3  | 3  | 3  | 3  |    |    |    |    |     |     |     |
| 9           | 3  | 3  | 3  | 3  | 3  |    |    |    |    |     |     |     |
| 10          | 3  | 3  | 3  | 3  | 3  |    |    |    |    |     |     |     |
| 11          | 3  | 3  | 3  | 2  | 3  |    |    |    |    |     |     |     |
| 12          | 3  | 3  | 3  | 3  | 3  |    |    |    |    |     |     |     |
| 13          | 3  | 3  | 3  | 3  | 3  |    |    |    |    |     |     |     |
| 14          | 3  | 3  | 3  | 3  | 3  |    |    |    |    |     |     |     |
| 15          | 3  | 3  | 3  | 3  | 3  |    |    |    |    |     |     |     |
| 16          | 3  | 2  | 3  | 3  | 3  |    |    |    |    |     |     |     |
| 17          | 3  | 3  | 3  | 3  | 3  |    |    |    |    |     |     |     |
| 18          | 3  | 3  | 3  | 3  | 3  |    |    |    |    |     |     |     |
| 19          | 3  | 3  | 3  | 3  | 3  |    |    |    |    |     |     |     |
| 20          | 3  | 3  | 3  | 3  | 3  |    |    |    |    |     |     |     |
| 21          | 3  | 3  | 3  | 3  | 3  |    |    |    |    |     |     |     |
| 22          | 3  | 2  | 3  | 3  | 3  |    |    |    |    |     |     |     |
| 23          | 3  | 3  | 3  | 3  | 3  |    |    |    |    |     |     |     |
| 24          | 3  | 3  | 3  | 3  | 3  |    |    |    |    |     |     |     |
| 25          | 3  | 3  | 3  | 3  | 3  |    |    |    |    |     |     |     |
| 26          | 3  | 2  | 2  | 3  | 3  |    |    |    |    |     |     |     |
| 27          | 3  | 3  | 3  | 3  | 3  |    |    |    |    |     |     |     |
| 28          | 3  | 3  | 3  | 3  | 3  |    |    |    |    |     |     |     |
| 29          | 3  | 3  | 3  | 2  | 3  |    |    |    |    |     |     |     |
| 30          | 3  | 3  | 3  | 3  | 3  |    |    |    |    |     |     |     |
| 31          | 3  | 3  | 3  | 3  | 3  |    |    |    |    |     |     |     |
| 32          | 3  | 3  | 3  | 3  | 3  |    |    |    |    |     |     |     |
| 33          | 3  | 3  | 3  | 3  | 3  |    |    |    |    |     |     |     |
| 34          | 3  | 3  | 3  | 3  | 3  |    |    |    |    |     |     |     |
| 35          | 2  | 3  | 3  | 3  | 3  |    |    |    |    |     |     |     |
| 36          | 3  | 3  | 3  | 3  | 2  |    |    |    |    |     |     |     |
| 37          | 3  | 3  | 3  | 3  | 3  |    |    |    |    |     |     |     |
| 38          | 3  | 2  | 3  | 3  | 2  |    |    |    |    |     |     |     |
| 39          | 2  | 2  | 2  | 2  | 2  |    |    |    |    |     |     |     |



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Department of Electrical and Electronics Engineering



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Section

A

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Mr. Kubera U

Academic Year

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## COURSE EXIT SURVEY

Student Rating in the scale of 1 to 3;

Low=1,Medium=2,High=3

| CO Mapping    | 1   | 2   | 3   | 4   | 5   |    |    |    |    |     |     |     |
|---------------|-----|-----|-----|-----|-----|----|----|----|----|-----|-----|-----|
| Response No   | Q1  | Q2  | Q3  | Q4  | Q5  | Q6 | Q7 | Q8 | Q9 | Q10 | Q11 | Q12 |
| 40            | 3   | 3   | 3   | 3   | 3   |    |    |    |    |     |     |     |
| 41            | 3   | 3   | 3   | 3   | 3   |    |    |    |    |     |     |     |
| 42            | 2   | 3   | 3   | 3   | 2   |    |    |    |    |     |     |     |
| 43            | 3   | 3   | 3   | 3   | 3   |    |    |    |    |     |     |     |
| 44            | 3   | 3   | 3   | 3   | 3   |    |    |    |    |     |     |     |
| 45            | 3   | 3   | 3   | 3   | 3   |    |    |    |    |     |     |     |
| 46            | 3   | 3   | 3   | 3   | 3   |    |    |    |    |     |     |     |
| 47            | 3   | 3   | 3   | 3   | 3   |    |    |    |    |     |     |     |
| 48            | 3   | 3   | 3   | 3   | 3   |    |    |    |    |     |     |     |
| 49            | 3   | 3   | 3   | 3   | 3   |    |    |    |    |     |     |     |
| 50            | 3   | 3   | 3   | 3   | 3   |    |    |    |    |     |     |     |
| 51            | 3   | 3   | 3   | 3   | 3   |    |    |    |    |     |     |     |
| 52            | 3   | 2   | 3   | 3   | 3   |    |    |    |    |     |     |     |
| 53            | 2   | 2   | 2   | 2   | 2   |    |    |    |    |     |     |     |
| 54            | 3   | 3   | 3   | 3   | 3   |    |    |    |    |     |     |     |
| 55            | 3   | 3   | 3   | 3   | 3   |    |    |    |    |     |     |     |
| 56            | 3   | 3   | 3   | 3   | 3   |    |    |    |    |     |     |     |
| 57            | 3   | 2   | 3   | 3   | 2   |    |    |    |    |     |     |     |
| 58            | 3   | 2   | 3   | 3   | 2   |    |    |    |    |     |     |     |
| 59            | 3   | 3   | 3   | 3   | 3   |    |    |    |    |     |     |     |
| 60            | 3   | 3   | 3   | 3   | 3   |    |    |    |    |     |     |     |
| 61            | 2   | 2   | 2   | 2   | 2   |    |    |    |    |     |     |     |
| 62            | 3   | 2   | 3   | 2   | 3   |    |    |    |    |     |     |     |
| 63            | 3   | 2   | 3   | 2   | 3   |    |    |    |    |     |     |     |
| 64            | 3   | 3   | 3   | 3   | 3   |    |    |    |    |     |     |     |
| 65            |     |     |     |     |     |    |    |    |    |     |     |     |
| 66            |     |     |     |     |     |    |    |    |    |     |     |     |
| 67            |     |     |     |     |     |    |    |    |    |     |     |     |
| 68            |     |     |     |     |     |    |    |    |    |     |     |     |
| 69            |     |     |     |     |     |    |    |    |    |     |     |     |
| 70            |     |     |     |     |     |    |    |    |    |     |     |     |
| 71            |     |     |     |     |     |    |    |    |    |     |     |     |
| 72            |     |     |     |     |     |    |    |    |    |     |     |     |
| 73            |     |     |     |     |     |    |    |    |    |     |     |     |
| 74            |     |     |     |     |     |    |    |    |    |     |     |     |
| 75            |     |     |     |     |     |    |    |    |    |     |     |     |
| Total         | 185 | 177 | 184 | 183 | 180 |    |    |    |    |     |     |     |
| No of Entries | 64  | 64  | 64  | 64  | 64  |    |    |    |    |     |     |     |