Ministry of Higher Education and Scientific Research
Scientific supervision and evaluation
Department of Quality Assurance and Academic Accreditation
International Accreditation Section

# The academic program description form for colleges and institutes

# For the academic year 2021-2022

University Name: University of Technology
Name of Faculty: Department of Electrical Engineering
Number of sections and scientific branches in the college: (2) Two
Date of file filling: 2021

| | | |
|---|---|---|
| Director of the Division of Quality Assurance and University Performance: | Assistant Dean for Scientific Affairs: | Name of the Dean of the College: |
| Msc.Sarab Ali Mahmood | Dr. Raaed Thaaban Hammed | Dr. Montadher Sami Shaker |
| Date 1/10 / 2021 | Date 1/10 / 2021 | Date 1/10 / 2021 |
| Signature | Signature | Signature |

**Check the file by:**
**Quality assurance and university performance**
**Name of the Director of the Department of Quality Assurance and University Performance:**
**Date :-**

**Signature**

# Model Description of Academic Program

**Review of Performance of Higher Education Institutions(Academic Program Review )**

**Description of the academic program**

**This description of the academic program provides a brief summary of the main characteristics of the program and the expected learning outcomes of the students to demonstrate whether they have made the best use of the opportunities available. It is accompanied by a description of each course within the program**

| | |
|---|---|
| 1. Educational institution | University Of Technology |
| 2. University / Center | Electrical Engineering Department |
| 3. Name of academic program | Electrical program |
| 4. Name of the final certificate | B.Sc. |
| 5. Study system | semester system |
| 6. Accredited accreditation program | The department is preparing to obtain accreditation from an organization **ABET** |
| 7. Other external influences | none |
| 8. Date of description setting | 2021-2022 |
| 9. Objectives of the academic program | 9 (a) Preparing graduates in the field of understanding and design of electronic circuits and the use of computer skills and software development**.** |
| | |

| | |
|---|---|
| | 9 (b) The ability to understand the problems to be solved and to find the target required representative of solving these problems through the collection of data for electronic circuits and scientific programs and analysis |
| | 9 (c) Provide the educational process within the department teachers and researchers and provide public institutions with qualified engineers in the field of competence. |
| 10 (a) - Knowledge and understanding | 1- The ability to have knowledge in the fields of mathematics and specialized engineering sciences in the application of electrical engineering<br>2- Acquisition of the necessary sciences in the various disciplines of electrical engineering<br>3- Preparing the student to continue self-learning and the acquisition of new technologies and skills in the field of engineering<br>4- Building skills by following the right procedures. |
| 10 (b) - Special skills | 1- The ability to select and conduct the required examinations and collect, compare and analyze the results of the examinations<br>2- The ability to design, audit and supervise the implementation of systems related to electrical engineering<br>3- The ability to derive and approach engineering issues in a scientific manner and to determine the appropriate method to address emerging engineering problems. |

## Teaching and learning methods

Theory books and theoretical lectures

Scientific laboratories

small projects

Electronic References

### Evaluation methods

Exam sudden and evaluation of homework in addition to the written exam quarterly

A quarterly exam

Exam quarterly "small projects

Preparing quarterly reports

Class discussions and discussions

Determine the grade for daily attendance

### Emotional goals and values

1-Question: Search for new information and raise questions

2 - Conclusion and reasoning: think about what is beyond the information available to fill gaps in them

3 - Comparison: Note the proportions and differences between things

4- .Classification: Putting things into groups according to common characteristics

## Teaching and learning methods

1. Practical labs that develop students' thinking architecture

2. Questions of intellectual tests

3. Interference with other disciplines (mathematical applications)

4. Preparing research and projects related to the subject matter

### Evaluation methods

Prepare periodic reports on subjects related to the article

Implementation of small practical and applied projects

Giving the student real problems to find out the extent of his comprehension of the scientific material and linking the subjects with each other

Theoretical and practical tests

## General and movable skills

1- Be able to solve any electronic problem

2 - Conducting experiments to develop any electronic circuit

3 - the ability to use the means of illustration to make polymers

4 - Identify the software ready and deal with it at a high degree that expands the base rule

5. Paying the application and encouraging them to participate in competitive forums between the branches of one college or a number of colleges

6. The use of theoretical and practical tools in the analysis and implementation of database systems

7- Use modern means of communication to interact with the team to solve a specific problem

# Teaching and learning methods

by:-

1 - Presentation of exercises during the lectures and ask the student to solve at home and laboratory applications in the field of competence

2 - Monitoring the ways of learning the students and assess the growth of their learning throughout the academic year, knowledge of the needs of students and points

Weakness and strength and have the ability to assess reality

3- Adopting modern electronic means of illustration

4 -Adoption of modern books

## Evaluation methods

| |
|---|
| *Practical and theoretical exam*<br><br>*Daily tests*<br><br>*Homework*<br><br>*Work small projects*<br><br>*Class discussions* |

The contents of the Bachelor of Electrical Engineering program are listed below:

## *Electrical Engineering Program 2021-2022*

First Year

**First Year (Semester System)**

| Code | First Semester | Hours / Week | | | Units |
|---|---|---|---|---|---|
| | Subject | Lect. | Lab. | Disc. | |
| EE11 01 | Fundamentals of Electrical Engineering I | 2 | - | 1 | 2 |
| EE11 02 | Electronics Physics I | 2 | - | - | 2 |
| EE11 03 | Mathematics I | 4 | - | 1 | 4 |
| EE11 04 | Computer Science | 2 | 2 | - | 3 |
| EE11 05 | Mechanical Engineering I | 2 | - | - | 2 |
| EE11 06 | Technical English | 2 | - | - | 3 |
| EE1107 | Workshops I | - | 6 | - | 2 |
| EE11 08 | Electrical Engineering Lab. I | - | 2 | - | 1 |
| **Total** | | **14** | **10** | **2** | **19** |

| Code | Second Semester | Hours / Week | | | Units |
|---|---|---|---|---|---|
| | Subject | Lect. | Lab. | Disc. | |
| EE12 09 | Fundamentals of Electrical Engineering II | 2 | - | 1 | 2 |
| EE12 10 | Electronics Physics II | 2 | - | - | 2 |
| EE12 11 | Mathematics II | 4 | - | 1 | 4 |

| | | | | | |
|---|---|---|---|---|---|
| EE12 12 | Digital Techniques | 2 | - | - | 2 |
| EE12 13 | Mechanical Engineering II | 2 | - | - | 2 |
| EE12 14 | Engineering Drawing & Auto CAD | - | 4 | - | 2 |
| EE12 15 | Workshops II | - | 6 | - | 3 |
| EE12 16 | Electrical Engineering Lab. II | - | 2 | - | 1 |
| **Total** | | **12** | **12** | **2** | **18** |

EE : Division of Electrical Engineering

| | Hours/ Week | Units |
|---|---|---|
| **First Semester** | **26** | **19** |
| **Second Semester** | **26** | **18** |

***Electrical Engineering Program 2021-2022***

**Second Year (Semester System)**

| Code | First Semester | Hours / Week | | | Units |
|---|---|---|---|---|---|
| | **Subject** | Lect. | Lab. | Disc. | |
| EE21 01 | Applied Physics I | 3 | - | - | 3 |
| EE21 02 | Mathematics III | 4 | - | 1 | 4 |
| EE21 03 | Computer Programming | 2 | 2 | - | 3 |
| EE21 04 | Electronics I | 2 | - | 1 | 2 |
| EE21 05 | Electromagnetic Fields I | 2 | - | 1 | 2 |
| EE21 06 | Electric Networks I | 2 | - | 1 | 2 |
| EE21 07 | DC Machines | 2 | - | 1 | 2 |
| EE21 08 | Electrical Machines Lab. | - | 2 | - | 1 |
| **Total** | | **17** | **4** | **5** | **19** |

| Code | Second Semester | Hours / Week | | | Units |
|---|---|---|---|---|---|
| | **Subject** | Lect. | Lab. | Disc. | |
| EE22 09 | Applied Physics II | 3 | - | - | 3 |
| EE22 10 | Mathematics IV | 4 | - | 1 | 4 |
| EE22 11 | Instrumentation & Measurements | 2 | - | - | 2 |

| | | | | | |
|---|---|---|---|---|---|
| EE22 12 | Electronics II | 2 | - | 1 | 2 |
| EE22 13 | Electromagnetic Fields II | 2 | - | 1 | 2 |
| EE22 14 | Electric Networks II | 2 | - | 1 | 2 |
| EE2215 | AC Machines I | 2 | - | 1 | 2 |
| EE2216 | Electronics Lab. | - | 2 | - | 1 |
| **Total** | | **17** | **2** | **5** | **18** |

EE : Division of Electrical Engineering

| | Hours/ Week | Units |
|---|---|---|
| **First Semester** | **26** | **19** |
| **Second Semester** | **24** | **18** |

## 2021-2022
### Third Year (Semester System)

| Code | First Semester | Hours / Week | | | Units |
|---|---|---|---|---|---|
| | **Subject** | Lec. | Lab. | Disc. | |
| EE31 01 | Electrical Power Engineering | 2 | - | - | 2 |
| EE31 02 | AC Machines II | 2 | - | 1 | 2 |
| EE31 03 | Microprocessor Engineering I | 2 | - | - | 2 |
| EE31 04 | Engineering Analysis I | 4 | - | 1 | 4 |
| EE31 05 | Control Engineering I | 2 | - | 1 | 2 |
| EE31 06 | Communication Engineering I | 2 | - | - | 2 |
| EE31 07 | Human Rights & Engineering Skills and Ethics | 2 | - | - | 2 |
| EE31 08 | Electrical Engineering Lab. III | - | 4 | - | 2 |
| EE31 09 | Control Lab. | - | 4 | - | 2 |
| **Total** | | **16** | **8** | **3** | **20** |

| Code | Second Semester | Hours / Week | | | Units |
|---|---|---|---|---|---|
| | **Subject** | Lec. | Lab. | Disc. | |
| EE32 10 | High Voltage Engineering | 2 | - | - | 2 |
| EE32 11 | AC Machines III | 2 | - | 1 | 2 |

| | | | | | |
|---|---|---|---|---|---|
| EE32 12 | Microprocessor Engineering II | 2 | - | - | 2 |
| EE32 13 | Engineering Analysis II | 4 | - | 1 | 4 |
| EE32 14 | Control Engineering II | 2 | - | 1 | 2 |
| EE32 15 | Communication Engineering II | 2 | - | - | 2 |
| EE32 16 | Electronics III | 2 | - | - | 2 |
| EE32 17 | Electrical Engineering Lab. IV | - | 4 | - | 2 |
| EE32 18 | Communication Lab. | - | 4 | - | 2 |
| **Total** | | **16** | **8** | **3** | **20** |

EE : Division of Electrical Engineering

| | Hours/ Week | Units |
|---|---|---|
| **First Semester** | **27** | **20** |
| **Second Semester** | **27** | **20** |

# University of Technology
## Department of Electrical Engineering
### Division of Electrical Engineering
## 2021-2022
### Fourth Year (Semester System)

| Code | First Semester | Hours / Week | | | Units |
|---|---|---|---|---|---|
| | **Subject** | Lec. | Lab. | Disc. | |
| EE41 01 | Final Year Project I | 1 | 2 | - | 2 |
| EE41 02 | Power System Analysis I | 3 | - | - | 3 |
| EE41 03 | Elective Subject I | 2 | - | 1 | 2 |
| EE41 04 | AC Machines IV | 2 | - | 1 | 2 |
| EE41 05 | Power Electronics I | 2 | - | 1 | 2 |
| EE41 06 | Electronics IV | 2 | - | 1 | 2 |
| EE41 07 | Industrial Management | 2 | - | - | 2 |
| EE41 08 | Electrical Engineering Lab. V | - | 4 | - | 2 |
| **Total** | | **14** | **6** | **4** | **17** |

| Code | Second Semester | Hours / Week | Units |
|---|---|---|---|

| | Subject | Lec. | Lab. | Disc. | |
|---|---|---|---|---|---|
| EE42 09 | Final Year Project II | 1 | 2 | - | 2 |
| EE42 10 | Power System Analysis II | 3 | - | - | 3 |
| EE42 11 | Elective Subject II | 2 | - | 1 | 2 |
| EE42 12 | Drives | 2 | - | 1 | 2 |
| EE4213 | Power Electronics II | 2 | - | 1 | 2 |
| EE42 14 | Communication Engineering III | 2 | - | 1 | 2 |
| EE42 15 | Operations Research | 2 | - | - | 2 |
| EE42 16 | Electrical Engineering Lab.VI | - | 4 | - | 2 |
| **Total** | | **14** | **6** | **4** | **17** |

EE : Division of Electrical Engineering

| | Hours/ Week | Units |
|---|---|---|
| **First Semester** | **24** | **17** |
| **Second Semester** | **24** | **17** |

| Curriculum Skills Map | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| please tick in the relevant boxes where individual Programme Learning Outcomes are being assessed | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Year / Level | Course Code | Course Title | Core (C) Title or Option (O) | Programme Learning Outcomes | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | Knowledge and understanding | | | | | | | Subject-specific skills | | | | | Thinking Skills | | | | | | General and Transferable Skills (or) Other skills relevant to employability and personal development | | | | | | | | |
| | | | | A1 | A2 | A3 | A4 | A5 | A6 | A7 | B1 | B2 | B3 | B4 | B5 | C1 | C2 | C3 | C4 | C5 | C6 | D1 | D2 | D3 | D4 | D5 | D6 | D7 | D8 | | |
| First | EE11 01 | Fundamentals of Electrical Engineering I | C | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | | |
| | EE11 02 | Electronics Physics I | C | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | | |
| | EE11 03 | Mathematics I | C | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | | |
| | EE11 04 | Computer Science | C | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | | |
| | EE11 05 | English Language I | C | * | * | | | | | | * | * | | | | * | * | | | | | * | * | | | | | | | | |
| | EE11 06 | Workshops I | C | * | * | * | | | | | * | * | * | | | * | * | * | | | | * | * | * | | | | | | | |
| | EE1107 | Engineering Drawing & Auto CAD | C | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | EE12 09 | Fundamentals of Electrical Engineering II | C | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | | |

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| | EE12 10 | Electronic Physics II | C | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| | EE12 11 | Mathematics II | C | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| | EE12 12 | Digital Electronic I | C | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| | EE12 13 | Engineering Mechanics | C | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| | EE12 14 | Technical Report | C | * | * | * | | | | | * | * | * | | | * | * | * | | | | * | * | * | | | | | | |
| | EE12 15 | Workshops II | C | * | * | * | | | | | * | * | * | | | * | * | * | | | | * | * | * | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **Second** | EE21 01 | Applied Physics I | C | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| | EE21 02 | Mathematics III | C | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| | EE21 03 | Computer Programming | C | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| | EE21 04 | Electronics I | C | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| | EE21 05 | Electromagnetic Fields I | C | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| | EE21 06 | Electric Networks I | C | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| | EE21 07 | DC Machines | C | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

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| | EE22 09 | Applied Physics II | C | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| | EE22 10 | Mathematics IV | C | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| | EE22 11 | Instrumentation & Measurements | C | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| | EE22 12 | Electronics II | C | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| | EE22 13 | Electromagnetic Fields II | C | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| | EE22 14 | Electric Networks II | C | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| | EE2215 | AC Machines I | C | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **Third** | EE31 01 | Electrical Power Engineering | C | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| | EE31 02 | AC Machines II | C | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |

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| EE31 03 | Microprocessor Engineering I | C | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| EE31 04 | Engineering Analysis I | C | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| EE31 05 | Control Engineering I | C | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| EE31 06 | Communication Engineering I | C | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| EE31 07 | Human Rights & Engineering Skills and Ethics | C | * | * | | | | | | * | * | | | | * | * | | | | | * | * | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| EE32 10 | High Voltage Engineering | C | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| EE32 11 | AC Machines III | C | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| EE32 12 | Microprocessor Engineering II | C | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| EE32 13 | Engineering Analysis II | C | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| EE32 14 | Control Engineering II | C | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| EE32 15 | Communication Engineering II | C | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |

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| | EE32 16 | Electronics III | C | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **Fourth** | EE41 01 | Final Year Project I | C | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| | EE41 02 | Power System Analysis I | C | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| | EE41 03 | Electrical distribution system | O | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| | EE41 04 | AC Machines IV | C | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| | EE41 05 | Power Electronics I | C | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| | EE41 06 | Electronics IV | C | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| | EE41 07 | Industrial Management | C | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | EE42 09 | Final Year Project II | C | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| | EE42 10 | Power System Analysis II | C | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| | EE42 11 | Electrical Design | O | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| | EE42 12 | Drives | C | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| | EE4213 | Power Electronics II | C | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |

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| | EE42 14 | Communication Engineering III | C | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| | EE42 15 | Operations Research | C | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
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