AC 14/7/2016, Item No. 4.64

UNIVERSITY OF MUMBAI

Bachelor of Engineering

First Year Engineering (Semester I & II), Revised course (REV- 2016) from Academic Year 2016 – 17, (Common for All Branches of Engineering)

(As per **Choice Based Credit and Grading System** with effect from the academic year 2016–2017)

From Coordinator's Desk:-

To meet the challenge of ensuring excellence in engineering education, the issue of quality needs to be addressed, debated taken forward in a systematic manner. Accreditation is the principal means of quality assurance in higher education. The major emphasis of accreditation process is to measure the outcomes of the program that is being accredited. In line with this Faculty of Technology of University of Mumbai has taken a lead in incorporating philosophy of outcome based education in the process of curriculum development.

Faculty of Technology, University of Mumbai, in one of its meeting unanimously resolved that, each Board of Studies shall prepare some Program Educational Objectives (PEO's) give freedom to affiliated Institutes to add few (PEO's) course objectives course outcomes to be clearly defined for each course, so that all faculty members in affiliated institutes understand the depth approach of course to be taught, which will enhance learner's learning process. It was also resolved that, maximum senior faculty from colleges experts from industry to be involved while revising the curriculum. I am happy to state that, each Board of studies has adhered to the resolutions passed by Faculty of Technology, developed curriculum accordingly. In addition to outcome based education, **Choice Based Credit and Grading System** is also introduced to ensure quality of engineering education.

Choice Based Credit and Grading System enables a much-required shift in focus from teacher-centric to learner-centric education since the workload estimated is based on the investment of time in learning not in teaching. It also focuses on continuous evaluation which will enhance the quality of education. University of Mumbai has taken a lead in implementing the system through its affiliated Institutes Faculty of Technology has devised a transparent credit assignment policy adopted ten points scale to grade learner's performance. Credit grading based system was implemented for First Year of Engineering from the academic year 2016-2017. Subsequently this system will be carried forward for Second Year Engineering in the academic year 2017-2018, for Third Year Final Year Engineering in the academic years 2018-2019, 2019-2020, respectively.

Dr. S. K. Ukarande
Co-ordinator,
Faculty of Technology,
Member - Academic Council
University of Mumbai, Mumbai

Program Structure for
First Year Engineering (Semester I & II)
Mumbai University
(With Effect from 2016-2017)

Semester I

Course Code	Course Name	Teaching Scheme (Contact Hours)			Credits Assigned			
		Theory	Pract.	Tut.	Theory	TW/Pract	Tut.	Total
FEC101	**Applied Mathematics-I**	04	-	01	04	-	01	**05**
FEC102	**Applied Physics-I**	03	01	-	03	0.5	-	**3.5**
FEC103	**Applied Chemistry -I**	03	01	-	03	0.5	-	**3.5**
FEC104	**Engineering Mechanics**	05	02	-	05	01	-	**06**
FEC105	**Basic Electrical Engineering**	04	02	-	04	01	-	**05**
FEC106	**Environmental studies**	02	-	-	02	-	-	**02**
FEL101	**Basic Workshop Practice-I**	-	04	-	-	02	-	**02**
Total		**21**	**10**	**01**	**21**	**05**	**01**	**27**

Course Code	Course Name	Examination Scheme							
		Theory				Term Work	Pract	Oral	Total
		Internal Assessment			End Sem Exam				
		Test1	Test2	Avg					
FEC101	**Applied Mathematics-I**	20	20	20	80	25	-	-	**125**
FEC102	**Applied Physics-I**	15	15	15	60	25	-	-	**100**
FEC103	**Applied Chemistry –I**	15	15	15	60	25	-	-	**100**
FEC104	**Engineering Mechanics**	20	20	20	80	25	-	25	**150**
FEC105	**Basic Electrical Engineering**	20	20	20	80	25	-	25	**150**
FEC106	**Environmental studies**	15	15	15	60	-	-	-	**75**
FEL101	**Basic Workshop Practice-I**	-	-	-	-	50	-	-	**50**
Total				**105**	**420**	**175**		**50**	**750**

Semester II

Course Code	Course Name	Teaching Scheme (Contact Hours)			Credits Assigned			
		Theory	Pract.	Tut.	Theory	TW/Pract	Tut.	Total
FEC201	**Applied Mathematics-II**	04	-	01	04	-	01	**05**
FEC202	**Applied Physics-II**	03	01	-	03	0.5	-	**3.5**
FEC203	**Applied Chemistry -II**	03	01	-	03	0.5	-	**3.5**
FEC204	**Engineering Drawing**	03	04	-	03	02	-	**05**
FEC205	**Structured Programming Approach**	04	02	-	04	01	-	**05**
FEC206	**Communication Skills**	02	02	-	02	01	-	**03**
FEL201	**Basic Workshop Practice-II**	-	04	-	-	02	-	**02**
Total		**19**	**14**	**01**	**19**	**07**	**01**	**27**

Course Code	Course Name	Examination Scheme							
		Theory				Term Work	Pract	Oral	Total
		Internal Assessment			End Sem Exam				
		Test1	Test2	Avg					
FEC201	**Applied Mathematics-II**	20	20	20	80	25	-	-	**125**
FEC202	**Applied Physics-II**	15	15	15	60	25	-	-	**100**
FEC203	**Applied Chemistry -II**	15	15	15	60	25	-	-	**100**
FEC204	**Engineering Drawing**	15	15	15	60	25	50	-	**150**
FEC205	**Structured Programming Approach**	20	20	20	80	25	25	-	**150**
FEC206	**Communication Skills**	10	10	10	40	25	-	-	**75**
FEL201	**Basic Workshop Practice-II**	-	-	-	-	50	-	-	**50**
Total				**95**	**380**	**200**	**75**	**-**	**750**

AC 11/05/2017
Item No. 4.183

UNIVERSITY OF MUMBAI

Revised syllabus (Rev- 2016) from Academic Year 2016 -17
Under

FACULTY OF TECHNOLOGY

Electrical Engineering

Second Year with Effect from **AY 2017-18**
Third Year with Effect from **AY 2018-19**
Final Year with Effect from **AY 2019-20**

As per **Choice Based Credit and Grading System**
with effect from the AY 2016–17

From Co-coordinator's Desk:

To meet the challenge of ensuring excellence in engineering education, the issue of quality needs to be addressed, debated, and taken forward in a systematic manner. Accreditation is the principal means of quality assurance in higher education. The major emphasis of accreditation process is to measure the outcomes of the program that is being accredited. In line with this Faculty of Technology of University of Mumbai, has taken a lead in incorporating philosophy of outcome based education in the process of curriculum development.

Faculty of Technology, University of Mumbai, in one of its meeting unanimously resolved that, each Board of Studies shall prepare some Program Educational Objectives (PEO's) and give freedom to affiliated Institutes to add few (PEO's), course objectives and course outcomes to be clearly defined for each course, so that all faculty members in affiliated institutes understand the depth and approach of course to be taught, which will enhance learner's learning process. It was also resolved that, maximum senior faculty from colleges and experts from industry to be involved while revising the curriculum. I am happy to state that, each Board of Studies has adhered to the resolutions passed by Faculty of Technology, and developed curriculum accordingly. In addition to outcome based education, **Choice Based Credit and Grading System** is also introduced to ensure quality of engineering education.

Choice Based Credit and Grading System enable a much-required shift in focus from teacher-centric to learner-centric education. Since the workload estimated is based on the investment of time in learning, not in teaching. It also focuses on continuous evaluation which will enhance the quality of education. University of Mumbai has taken a lead in implementing the system through its affiliated Institutes. Faculty of Technology has devised a transparent credit assignment policy adopted ten points scale to grade learner's performance. **Choice Based Credit and Grading System** were implemented for First Year of Engineering (Undergraduate) from the academic year 2016-2017. Subsequently this system will be carried forward for Second Year of Engineering (Undergraduate) in the academic year 2017-2018 and so on.

Dr. Suresh K. Ukarande
Coordinator,
Faculty of Technology,
Member - Academic Council
University of Mumbai, Mumbai

Preamble:

The overall technical education in our country is changing rapidly in manifolds. Now it is very much challenging to maintain the quality of education with its rate of expansion. To meet present requirement a systematic approach is necessary to build the strong technical base with the quality. Accreditation will provide the quality assurance in higher education and to achieve recognition of the institution or program meeting certain specified standards. The main-focus of an accreditation process is to measure the program outcomes, essentially a range of skills and knowledge that a student will have at the time of graduation from the program that is being accredited. Faculty of Technology of University of Mumbai has taken a lead in incorporating philosophy of outcome based education in the process of curriculum development.

I, as a Chairman, Board of Studies in Electrical Engineering of University of Mumbai, happy to state here that, Program Educational Objectives (PEOs) were finalized for undergraduate program in Electrical Engineering, more than ten senior faculty members from the different institutes affiliated to University of Mumbai were actively participated in this process. Few PEOs and POs of undergraduate program in Electrical Engineering are listed below;

Program Educational Objectives (PEOs)

- *Graduates will have successful career in industry or pursue higher studies to meet future challenges of technological development.*
- *Graduates will develop analytical and logical skills that enable them to analyze and design Electrical Systems and their Controls.*
- *Graduates will achieve professional skills to expose themselves by giving an opportunity as an individual as well as team.*
- *Graduates will undertake research activities in emerging multidisciplinary fields.*

Program Outcomes (POs)

- **Engineering knowledge**: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
- **Problem analysis**: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
- **Design/development of solutions**: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.

- **Conduct investigations of complex problems**: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
- **Modern tool usage**: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.
- **The engineer and society**: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.
- **Environment and sustainability**: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
- **Ethics**: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
- **Individual and team work**: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
- **Communication**: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.
- **Project management and finance**: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
- **Life-long learning**: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

Dr. S. R. Deore,
Chairman,
Board of Studies in Electrical Engineering,
Member - Academic Council
University of Mumbai

Program Structure for
SE Electrical Engineering
University of Mumbai
(With Effect from 2017-18)

Scheme for Semester III

Course Code	Course Name	Teaching Scheme (Contact Hours)			Credits Assigned			
		Theory	Practical	Tutorial	Theory	Practical	Tutorial	Total
EEC301	Applied Mathematics - III	4	-	1	4	-	1	5
EEC302	Electronic Devices and Circuits	4	-	-	4	-	-	4
EEC303	Conventional and Non-Conventional Power Generation	3	-	1	3	-	1	4
EEC304	Electrical and Electronics Measurement	4	-	-	4	-	-	4
EEC305	Electrical Machine – I	4	-	-	4	-	-	4
EEL301	Electrical and Electronics Measurement Lab	-	2	-	-	1	-	1
EEL302	Object Oriented Programming and Methodology Lab	-	4#	-	-	2	-	2
EEL303	Electronics Lab - I	-	2	-	-	1	-	1
EEL304	Electrical Machine Lab- I	-	2	-	-	1	-	1
Total		**19**	**10**	**2**	**19**	**5**	**2**	**26**

 # Out of four hours, 2 hours theory shall be taught to entire class and 2 hours practical in batches

Examination Scheme for Semester III

Course Code	Course Name	Examination Scheme												Total Marks
		Theory				Term Work		Practical		Oral		Pract./Oral		
		External (UA)		Internal (CA)										
		Max Marks	Min Marks	Max Marks	Min Marks	Max Marks	Min Marks	Max Marks	Min Marks	Max Marks	Min Marks	Max Marks	Min Marks	
EEC301	Applied Mathematics - III	80	32	20	8	25	10	-	-	-	-	-	-	125
EEC302	Electronic Devices and Circuits	80	32	20	8	-	-	-	-	-	-	-	-	100
EEC303	Conventional and Non-Conventional Power Generation	80	32	20	8	25	10	-	-	-	-	-	-	125
EEC304	Electrical and Electronics Measurement	80	32	20	8	-	-	-	-	-	-	-	-	100
EEC305	Electrical Machine –I	80	32	20	8	-	-	-	-	-	-	-	-	100
EEL301	Electrical and Electronics Measurement Lab	-	-	-	-	25	10	-	-	25	10	-	-	50
EEL302	Object Oriented Programming and Methodology Lab	-	-	-	-	25	10	-	-	-	-	50	20	75
EEL303	Electronics Lab - I	-	-	-	-	25	10	-	-	-	-	25	10	50
EEL304	Electrical Machine Lab - I	-	-	-	-	25	10	-	-	-	-	25	10	50
Total		**400**	**-**	**100**	**-**	**150**	**-**	**-**	**-**	**25**	**-**	**100**	**-**	**775**

Program Structure for
SE Electrical Engineering
University of Mumbai
(With Effect from 2017-18)

Scheme for Semester IV

Course Code	Course Name	Teaching Scheme (Contact Hours)			Credits Assigned			
		Theory	Practical	Tutorial	Theory	Practical	Tutorial	Total
EEC401	Applied Mathematics - IV	4	-	1	4	-	1	5
EEC402	Power System - I	3	-	1	3	-	1	4
EEC403	Electrical Machines – II	4	-	-	4	-	-	4
EEC404	Electromagnetic Field and wave Theory	3	-	1	3	-	1	4
EEC405	Analog and Digital Integrated Circuits	3	-	-	3	-	-	3
EEC406	Electrical Network	3	-	1	3	-	1	4
EEL401	Simulation Lab - I	-	2	-	-	1	-	1
EEL402	Electrical Machines Lab - II	-	2	-	-	1	-	1
EEL403	Electronics Lab - II	-	2	-	-	1	-	1
EEL404	Electrical Workshop	-	2	-	-	1	-	1
Total		**20**	**8**	**4**	**20**	**4**	**4**	**28**

Examination Scheme for Semester IV

Course Code	Course Name	Examination Scheme												Total Marks
		Theory				Term Work		Practical		Oral		Pract./Oral		
		External (UA)		Internal (CA)										
		Max Marks	Min Marks	Max Marks	Min Marks	Max Marks	Min Marks	Max Marks	Min Marks	Max Marks	Min Marks	Max Marks	Min Marks	
EEC401	Applied Mathematics - IV	80	32	20	8	25	10	-	-	-	-	-	-	125
EEC402	Power System - I	80	32	20	8	25	10	-	-	-	-	-	-	125
EEC403	Electrical Machines - II	80	32	20	8	-	-	-	-	-	-	-	-	100
EEC404	Electromagnetic Field and wave Theory	80	32	20	8	25	10	-	-	-	-	-	-	125
EEC405	Analog and Digital Integrated Circuits	80	32	20	8	-	-	-	-	-	-	-	-	100
EEC406	Electrical Network	80	32	20	8	25	10	-	-	-	-	-	-	125
EEL401	Simulation Lab - I	-	-	-	-	25	10	-	-	25	10	-	-	50
EEL402	Electrical Machines Lab - II	-	-	-	-	25	10	-	-	-	-	25	10	50
EEL403	Electronics Lab - II	-	-	-	-	25	10	-	-	-	-	25	10	50
EEL404	Electrical Workshop	-	-	-	-	25	10	-	-	25	10	-	-	50
Total		**480**	**-**	**120**	**-**	**200**	**-**	**-**	**-**	**50**	**-**	**50**	**-**	**900**

AC
Item No.

UNIVERSITY OF MUMBAI

Revised syllabus (Rev- 2016) from Academic Year 2016 -17

Under

FACULTY OF TECHNOLOGY

Electrical Engineering

Third Year with Effect from **AY 2018-19**

As per **Choice Based Credit and Grading System**
with effect from the AY 2016–17

Program Structure for
TE Electrical Engineering
University of Mumbai
(With Effect from 2018-19)

Scheme for Semester V

Course Code	Course Name	Teaching Scheme (Contact Hours)			Credits Assigned			
		Theory	Practical	Tutorial	Theory	Practical	Tutorial	Total
EEC501	Power System - II	4	-	1	4	-	1	5
EEC502	Electrical Machines - III	4	-	-	4	-	-	4
EEC503	Control System - I	4	-	-	4	-	-	4
EEC504	Power Electronics	4	-	-	4	-	-	4
EEDLO501X	Department Level Optional Course-I	3	-	1	3	-	1	4
EEL501	Business Communication and Ethics	-	4**	-	-	2	-	2
EEL502	Control System Lab	-	2	-	-	1	-	1
EEL503	Electrical Machines Lab - III	-	2	-	-	1	-	1
EEL504	Power Electronics Lab	-	2	-	-	1	-	1
Total		**19**	**10**	**2**	**19**	**5**	**2**	**26**

**** Out of four hours, 2 hours theory shall be taught to entire class and 2 hours practical in batches**

Examination Scheme for Semester V

Course Code	Course Name	Examination Scheme												Total Marks
		Theory				Term Work		Practical		Oral		Pract./Oral		
		External (UA)		Internal (CA)										
		Max Marks	Min Marks	Max Marks	Min Marks	Max Marks	Min Marks	Max Marks	Min Marks	Max Marks	Min Marks	Max Marks	Min Marks	
EEC501	Power System - II	80	32	20	8	25	10	-	-	-	-	-	-	125
EEC502	Electrical Machines - III	80	32	20	8	-	-	-	-	-	-	-	-	100
EEC503	Control System - I	80	32	20	8	-	-	-	-	-	-	-	-	100
EEC504	Power Electronics	80	32	20	8	-	-	-	-	-	-	-	-	100
EEDLO 501X	Department Level Optional Course-I	80	32	20	8	25	10	-	-	-	-	-	-	125
EEL501	Business Communication and Ethics	-	-	-	-	50	20	-	-	-	-	-	-	50
EEL502	Control System Lab	-	-	-	-	25	10	-	-	25	10	-	-	50
EEL503	Electrical Machines Lab - III	-	-	-	-	25	10	-	-	-	-	25	10	50
EEL504	Power Electronics Lab	-	-	-	-	25	10	-	-	-	-	25	10	50
Total		**400**	**-**	**100**	**-**	**175**	**-**	**-**	**-**	**25**	**-**	**50**	**-**	**750**

Program Structure for
TE Electrical Engineering
University of Mumbai
(With Effect from 2018-19)

Scheme for Semester VI

Course Code	Course Name	Teaching Scheme (Contact Hours)			Credits Assigned			
		Theory	Practical	Tutorial	Theory	Practical	Tutorial	Total
EEC601	Protection and Switchgear Engineering	3	-	-	3	-	-	3
EEC602	Electrical Machines - IV	4	-	-	4	-	-	4
EEC603	Signal processing	3	-	1	3	-	1	4
EEC604	Microcontroller and its Applications	4	-	-	4	-	-	4
EEC605	Control System - II	4	-	-	4	-	-	4
EEDLO602X	Department Level Optional Course-II	3	-	1	3	-	1	4
EEL601	Electrical Protection Lab	-	2	-	-	1	-	1
EEL602	Electrical Machines Lab - IV	-	2	-	-	1	-	1
EEL603	Microcontroller Lab	-	2	-	-	1	-	1
EEL604	Simulation Lab – II	-	2	-	-	1	-	1
Total		**21**	**8**	**2**	**21**	**4**	**2**	**27**

Examination Scheme for Semester VI

Course Code	Course Name	Examination Scheme												Total Marks
		Theory				Term Work		Practical		Oral		Pract./Oral		
		External (UA)		Internal (CA)										
		Max Marks	Min Marks	Max Marks	Min Marks	Max Marks	Min Marks	Max Marks	Min Marks	Max Marks	Min Marks	Max Marks	Min Marks	
EEC601	Protection and Switchgear Engineering	80	32	20	8	-	-	-	-	-	-	-	-	100
EEC602	Electrical Machines - IV	80	32	20	8	-	-	-	-	-	-	-	-	100
EEC603	Signal processing	80	32	20	8	25	10	-	-	-	-	-	-	125
EEC604	Microcontroller and its Applications	80	32	20	8	-	-	-	-	-	-	-	-	100
EEC605	Control System - II	80	32	20	8	-	-	-	-	-	-	-	-	100
EEDLO602X	Department Level Optional Course-II	80	32	20	8	25	10	-	-	-	-	-	-	125
EEL601	Electrical Protection Lab	-	-	-	-	25	10	-	-	25	10	-	-	50
EEL602	Electrical Machines Lab - IV	-	-	-	-	25	10	-	-	-	-	25	10	50
EEL603	Microcontroller Lab	-	-	-	-	25	10	-	-	-	-	25	10	50
EEL604	Simulation Lab – II	-	-	-	-	25	10	-	-	25	10	-	-	50
Total		**480**	**-**	**120**	**-**	**150**	**-**	**-**	**-**	**50**	**-**	**50**	**-**	**850**

List of Department Level Optional Courses

Course Code	Department Level Optional Course - I
EEDLO5011	Communication Engineering
EEDLO5012	Renewable Energy and Energy Storage
EEDLO5013	Utilization of Electrical Energy

Course Code	Department Level Optional Course - II
EEDLO6021	Digital Communication Engineering
EEDLO6022	Micro-grid
EEDLO6023	Advanced Power Electronics

AC
Item No.

UNIVERSITY OF MUMBAI

Revised syllabus (Rev- 2016) from Academic Year 2016 -17

Under

FACULTY OF TECHNOLOGY

Electrical Engineering

Final Year with Effect from **AY 2019-20**

As per **Choice Based Credit and Grading System**
with effect from the AY 2016–17

Program Structure for
BE Electrical Engineering
University of Mumbai
(With Effect from 2019-20)

Scheme for Semester VII

Course Code	Course Name	Teaching Scheme (Contact Hours)			Credits Assigned			
		Theory	Practical	Tutorial	Theory	Practical	Tutorial	Total
EEC701	Power System - III	4	-	1	4	-	1	5
EEC702	Drives and Control	4	-	-	4	-	-	4
EEC703	High Voltage Direct Current Transmission	4	-	-	4	-	-	4
EEDLO703X	Department Level Optional Course-III	3	-	1	3	-	1	4
ILO701X	Institute Level Optional Course-I	3	-	-	3	-	-	3
EEL701	Simulation Lab - III	-	2	-	-	1	-	1
EEL702	Drives and Control Lab	-	2	-	-	1	-	1
EEL703	Project-I	-	6	-	-	3	-	3
Total		**18**	**10**	**2**	**18**	**5**	**2**	**25**

Examination Scheme for Semester VII

Course Code	Course Name	Examination Scheme												Total Marks
		Theory				Term Work		Practical		Oral		Pract./Oral		
		External (UA)		Internal (CA)										
		Max Marks	Min Marks	Max Marks	Min Marks	Max Marks	Min Marks	Max Marks	Min Marks	Max Marks	Min Marks	Max Marks	Min Marks	
EEC701	Power System - III	80	32	20	8	25	10	-	-	-	-	-	-	125
EEC702	Drives and Control	80	32	20	8	-	-	-	-	-	-	-	-	100
EEC703	High Voltage Direct Current Transmission	80	32	20	8	-	-	-	-	-	-	-	-	100
EEDLO 703X	Department Level Optional Course-III	80	32	20	8	25	10	-	-	-	-	-	-	125
ILO701 X	Institute Level Optional Course-I	80	32	20	8	-	-	-	-	-	-	-	-	100
EEL701	Simulation Lab - III	-	-	-	-	25	10	-	-	25	10	-	-	50
EEL702	Drives and Control Lab	-	-	-	-	25	10	-	-	-	-	25	10	50
EEL703	Project-I	-	-	-	-	25	10	-	-	25	10	-	-	50
Total		**400**	**-**	**100**	**-**	**125**	**-**	**-**	**-**	**50**	**-**	**25**	**-**	**700**

Program Structure for
BE Electrical Engineering
University of Mumbai
(With Effect from 2019-20)

Scheme for Semester VIII

Course Code	Course Name	Teaching Scheme (Contact Hours)			Credits Assigned			
		Theory	Practical	Tutorial	Theory	Practical	Tutorial	Total
EEC801	Design, Management and Auditing of Electrical Systems	4	-	1	4	-	1	5
EEC802	Flexible AC Transmission System	4	-	-	4	-	-	4
EEDLO804X	Department Level Optional Course-IV	3	-	1	3	-	1	4
ILO802X	Institute Level Optional Course-II	3	-	-	3	-	-	3
EEL801	Simulation Lab - IV	-	2	-	-	1	-	1
EEL802	Electrical System Design Lab		2	-	-	1	-	1
EEL803	Project-II	-	12	-	-	6	-	6
Total		**14**	**16**	**2**	**14**	**8**	**2**	**24**

Examination Scheme for Semester VIII

Course Code	Course Name	Examination Scheme												Total Marks
		Theory				Term Work		Practical		Oral		Pract./Oral		
		External (UA)		Internal (CA)										
		Max Marks	Min Marks	Max Marks	Min Marks	Max Marks	Min Marks	Max Marks	Min Marks	Max Marks	Min Marks	Max Marks	Min Marks	
EEC801	Design, Management and Auditing of Electrical Systems	80	32	20	8	25	10	-	-	-	-	-	-	125
EEC802	Flexible AC Transmission System	80	32	20	8	-	-	-	-	-	-	-	-	100
EEDLO 804X	Department Level Optional Course-IV	80	32	20	8	25	10	-	-	-	-	-	-	125
ILO802 X	Institute Level Optional Course-II	80	32	20	8	-	-	-	-	-	-	-	-	100
EEL801	Simulation Lab - IV	-	-	-	-	25	10	-	-	25	10	-	-	50
EEL802	Electrical System Design Lab					25	10	-	-	25	10	-	-	50
EEL803	Project-II	-	-	-	-	50	20	-	-	50	20	-	-	100
Total		**320**	**-**	**80**	**-**	**150**	**-**	**-**	**-**	**100**	**-**	**-**	**-**	**650**

List of Department Level Optional Courses

Course Code	Department Level Optional Course - III
EEDLO7031	High Voltage Engineering
EEDLO7032	Electric Vehicle Technology
EEDLO7033	Industrial Controller
EEDLO7034	Power Quality

Course Code	Department Level Optional Course - IV
EEDLO8041	Illumination Engineering
EEDLO8042	Smart Grid
EEDLO8043	Power System Modeling and Control
EEDLO8044	Power System Planning and Reliability

List of Institute Level Optional Courses

Course Code	Institute Level Optional Course - I
ILO7011	Product Lifecycle Management
ILO7012	Reliability Engineering
ILO7013	Management Information System
ILO7014	Design of Experiments
ILO7015	Operation Research
ILO7016	Cyber Security and Laws
ILO7017	Disaster Management and Mitigation Measures
ILO7018	Energy Audit and Management
ILO7019	Development Engineering

Course Code	Institute Level Optional Course - II
ILO8021	Project Management
ILO8022	Finance Management
ILO8023	Entrepreneurship Development and Management
ILO8024	Human Resource Management
ILO8025	Professional Ethics and Corporate Social Responsibility (CSR)
ILO8026	Research Methodology
ILO8027	IPR and Patenting
ILO8028	Digital Business Management
ILO8029	Environmental Management