Bachelor of Science
Electronics Semester: II
(Major)

Course Code	US02MAELE01	Title of the Course	AC Fundamentals
Total Credits of the Course	4	Hours per Week	4

Course Objectives:	The course is to make the students understand the Fundamentals of Electronics Components to the AC Supplies.

Course Content		
Unit	**Description**	**Weightage In %**
1.	**AC Fundamentals:** Types of Alternating waves. Definitions of Cycle, Time Period, Frequency and Amplitude. Characteristics of Sine wave, Different values of Sinusoidal voltage and current, Phase angle and Phase difference of AC signal, Vector representation of an Alternating quantity, AC through pure Resistance, Inductance and Capacitance, Non Sinusoidal waveforms.	**25**
2.	**Series and Parallel AC Circuits:** R-L Circuit, Q factor of coil, R-C circuit, R-L-C Circuit, Resonance in RLC circuit, Resonance curve, Main characteristics of Series resonance, Band width of a Tuned circuit, sharpness of resonance, Parallel resonance. Examples related to resonance.	**25**
1.	**Transistor:** Introduction, Structure of Transistor, working of Transistor, Relation between different currents, transistor amplifying action, Transistor Configurations, Transistor characteristics in CE mode, Basic CE amplifier circuit.	**25**
2.	**Transistor Biasing:** Need of Biasing, Selection of operating point, Need for bias stabilization, requirements of biasing circuits, Fixed Biasing Circuit, Collector to base biasing circuit, Bias circuit with emitter follower, voltage divider biasing circuit, Emitter biasing circuit.	**25**

Teaching-Learning Methodology	Online and Board work

Evaluation Pattern		
Sr. No.	Details of the Evaluation	Weightage
1.	Internal Written / Practical Examination (As per CBCS R.6.8.3)	15%
2.	Internal Continuous Assessment in the form of Practical, Viva-voce, Quizzes, Seminars, Assignments, Attendance (As per CBCS R.6.8.3)	15%
3.	University Examination	70%

Course Outcomes: Having completed this course, the learner will be able to	
1.	Helps to understand the response of various active electronics components and their applications.
2.	Make students understand basic electronics AC circuits and their troubleshooting.

Suggested References:	
Sr. No.	References
1.	Basic Electronics (Solid State) By B.L.Theraja
2.	Basic Electronics By Bernard Grob.
3	Basic Electronics and Linear Circuits By Bhargava, Kulshreshtha and Gupta.

On-line resources to be used if available as reference material
On-line Resources

Bachelor of Science
Electronics Semester: II
(Major)
Practicals

Course Code	US02MAELE02	Title of the Course	Electronics Practicals.
Total Credits of the Course	4	Hours per Week	8

Course Objectives:	To make the students understand the Fundamentals of Electronics Components and Power supplies and their applications.

Part -1

Course Content		
No	**Title of Practical**	
1.	Measurement of Time Period and Frequency of AC signals.	
2.	Measurement of Phase angle of AC signals.	
3.	Phase relation of Inductive Voltage and Current.	
4.	Phase relation of Capacitive Voltage and Current.	
5.	Analysis of Network Using Thevenin's theorem.	
6.	Analysis of Network Using Norton's theorem.	
7.	Series Resonance.	
8.	Parallel Resonance.	
9.	Other experiments based on Theory.	

Part -2

Course Content		
No	**Title of Practical**	
1.	Transistor characteristics	
2.	Fixed biasing circuit.	

3.	Fixed bias with/without emitter resistor.	
4.	Collector to base biasing circuit.	
5.	Voltage divider biasing circuit.	
6.	Voltage gain of CE amplifier.	
7.	Frequency response of CE amplifier	
8.	Emitter biasing circuit.	
9.	Other experiments based on Theory.	

Teaching-Learning Methodology	Online and Board work

Evaluation Pattern		
Sr. No.	Details of the Evaluation	Weightage
1.	Internal Written / Practical Examination (As per CBCS R.6.8.3)	15%
2.	Internal Continuous Assessment in the form of Practical, Viva-voce, Quizzes, Seminars, Assignments, Attendance (As per CBCS R.6.8.3)	15%
3.	University Examination	70%

Course Outcomes: Having completed this course, the learner will be able to	
1.	Helps to understand the various passive and active electronics components.
2.	Make students understand basic electronics circuits and their troubleshooting.

Bachelor of Science
Electronics Semester: II
(Minor)

Course Code	US02MIELE01	Title of the Course	AC Circuits.
Total Credits of the Course	2	Hours per Week	2

Course Objectives:	The course is to make the students understand the Fundamentals of Electronics Components to the AC Supplies.

Course Content		
Unit	**Description**	**Weightage In %**
1.	**AC Fundamentals:** Types of Alternating waves. Definitions of Cycle, Time Period, Frequency and Amplitude. Characteristics of Sine wave, Different values of Sinusoidal voltage and current, Phase angle and Phase difference of AC signal, Vector representation of an Alternating quantity, Non Sinusoidal waveforms.	**50**
2.	**Series and Parallel AC Circuits:** R-L Circuit, Q factor of coil, R-C circuit, R-L-C Circuit, Resonance in RLC circuit, Resonance curve, Main characteristics of Series resonance, sharpness of resonance, Parallel resonance.	**50**

Teaching-Learning Methodology	Online and Board work

Evaluation Pattern		
Sr. No.	Details of the Evaluation	Weightage
1.	Internal Written / Practical Examination (As per CBCS R.6.8.3)	15%
2.	Internal Continuous Assessment in the form of Practical, Viva-voce, Quizzes, Seminars, Assignments, Attendance (As per CBCS R.6.8.3)	15%
3.	University Examination	70%

Course Outcomes: Having completed this course, the learner will be able to	
1.	Helps to understand the response of various active electronics components and their applications.
2.	Make students understand basic electronics AC circuits and their troubleshooting.

Suggested References:	
Sr. No.	References
1.	Basic Electronics (Solid State) By B.L.Theraja
2.	Basic Electronics By Bernard Grob.
3	Basic Electronics and Linear Circuits By Bhargava, Kulshreshtha and Gupta.

On-line resources to be used if available as reference material
On-line Resources

Bachelor of Science
Electronics Semester: II
(Minor) Practicals

Course Code	US02MIELE02	Title of the Course	Electronics Practicals
Total Credits of the Course	2	Hours per Week	4

Course Objectives:	To make the students understand the Fundamentals of Electronics Components and Power supplies and their applications.

Course Content		
No	**Title of Practical**	
1.	Measurement of Time Period and Frequency of AC signals.	
2.	Measurement of Phase angle of AC signals.	
3.	Phase relation of Inductive Voltage and Current.	
4.	Phase relation of Capacitive Voltage and Current.	
5.	Analysis of Network Using Thevenin's theorem.	
6.	Analysis of Network Using Norton's theorem.	
7.	Series Resonance.	
8.	Parallel Resonance.	
9.	Other experiments based on Theory.	

Teaching-Learning Methodology	Online and Board work

Evaluation Pattern		
Sr. No.	Details of the Evaluation	Weightage
1.	Internal Written / Practical Examination (As per CBCS R.6.8.3)	15%

2.	Internal Continuous Assessment in the form of Practical, Viva-voce, Quizzes, Seminars, Assignments, Attendance (As per CBCS R.6.8.3)	15%
3.	University Examination	70%

Course Outcomes: Having completed this course, the learner will be able to	
1.	Helps to understand the various passive and active electronics components.
2.	Make students understand basic electronics circuits and their troubleshooting.

Suggested References:	
Sr. No.	References
1.	Basic Electronics (Solid State) By B.L.Theraja
2.	Basic Electronics By Bernard Grob.

On-line resources to be used if available as reference material
On-line Resources

Bachelor of Science
Electronics Semester: II
(Inter Disciplinary)

Course Code	US02IDELE01	Title of the Course	Impedance Circuits.
Total Credits of the Course	2	Hours per Week	2

Course Objectives:	The course is to make the students understand the Fundamentals of Electronics Components to the AC Supplies.

Course Content		
Unit	**Description**	**Weightage In %**
1.	**AC Fundamentals:** Types of Alternating waves. Definitions of Cycle, Time Period, Frequency and Amplitude. Characteristics of Sine wave, Different values of Sinusoidal voltage and current, Phase angle and Phase difference of AC signal, Vector representation of an Alternating quantity, Non Sinusoidal waveforms.	**50**
2.	**Series and Parallel AC Circuits:** R-L Circuit, Q factor of coil, R-C circuit, R-L-C Circuit, Resonance in RLC circuit, Resonance curve, Main characteristics of Series resonance, sharpness of resonance, Parallel resonance.	**50**

Teaching-Learning Methodology	Online and Board work

Evaluation Pattern		
Sr. No.	Details of the Evaluation	Weightage
1.	Internal Written / Practical Examination (As per CBCS R.6.8.3)	15%
2.	Internal Continuous Assessment in the form of Practical, Viva-voce, Quizzes, Seminars, Assignments, Attendance (As per CBCS R.6.8.3)	15%
3.	University Examination	70%

Course Outcomes: Having completed this course, the learner will be able to	
1.	Helps to understand the response of various active electronics components and their applications.
2.	Make students understand basic electronics AC circuits and their troubleshooting.

Suggested References:	
Sr. No.	References
1.	Basic Electronics (Solid State) By B.L.Theraja
2.	Basic Electronics By Bernard Grob.
3	Basic Electronics and Linear Circuits By Bhargava, Kulshreshtha and Gupta.

On-line resources to be used if available as reference material
On-line Resources

Bachelor of Science
Electronics Semester: II
(Inter Disciplinary)
Practicals

Course Code	US02IDELE02	Title of the Course	Electronics Practicals
Total Credits of the Course	2	Hours per Week	4

Course Objectives:	To make the students understand the Fundamentals of Electronics Components and Power supplies and their applications.

Course Content		
No	**Title of Practical**	
1.	Measurement of Time Period and Frequency of AC signals.	
2.	Measurement of Phase angle of AC signals.	
3.	Phase relation of Inductive Voltage and Current.	
4.	Phase relation of Capacitive Voltage and Current.	
5.	Analysis of Network Using Thevenin's theorem.	
6.	Analysis of Network Using Norton's theorem.	
7.	Series Resonance.	
8.	Parallel Resonance.	
9.	Other experiments based on Theory.	

Teaching-Learning Methodology	Online and Board work

Evaluation Pattern		
Sr. No.	Details of the Evaluation	Weightage
1.	Internal Written / Practical Examination (As per CBCS R.6.8.3)	15%
2.	Internal Continuous Assessment in the form of Practical, Viva-voce, Quizzes, Seminars, Assignments, Attendance (As per CBCS R.6.8.3)	15%
3.	University Examination	70%

Course Outcomes: Having completed this course, the learner will be able to	
1.	Helps to understand the various passive and active electronics components.
2.	Make students understand basic electronics circuits and their troubleshooting.

Suggested References:	
Sr. No.	References
1.	Basic Electronics (Solid State) By B.L.Theraja
2.	Basic Electronics By Bernard Grob.

On-line resources to be used if available as reference material
On-line Resources