

3.1. Establish the correlation between the courses and the Program Outcomes (POs) & Program Specific Outcomes

- NBA defined Program Outcomes as mentioned in Annexure I and Program Specific Outcomes as defined by the Program. Six to ten matrices of core courses are to be mentioned with at least one per semester.
- Select core courses to demonstrate the mapping/correlation with all POs and PSOs.
- Number of Outcomes for a Course is expected to be around 6.

Program Articulation Matrix

	P O 1	P O 2	P O 3	P O 4	P O 5	P O 6	P O 7	P O 8	P O 9	P O 10	P O 11	P O 12	P S O 1	P S O 2	P S O 3	P S O 4
MEM102	3	2	1	1	1	0	0	0	0	0	0	1	3	3	0	3
EEM-202	3	2.6	1.6	0.6	1.6	0	1.2	0	0	0	0	1	3	1.6	0	3
EEM-301	3	3	2.2	0	1	0	1.6	0	0	0	0	1	3	1.6	0	3
EEM-305	3	3	1	1	1	0	0	0	0.4	0	0	1	3	0.8	2	3
EEM-403	3	3	0.4	1.8	2	0	0	0	0	0	0	0	2.2	2.8	1.8	3
EEM-501	3	3	0.6	0	2.6	0	0	0	0.6	0	0	2	3	1.2	3	3
RDC581	3	1.6	1.4	1.4	0.4	0	3	0	0	0	0	0	2	3	0	3
EEM-604	3	3	0	2	1.2	0	1.8	0.6	0	0	0.4	0	2	2	0	2.6
CEC 681	0	0	0	0	0	0	2	3	0	1.4	0	3	0.8	1.6	3	3
EEM-706	3	3	0.8	0	0	0	0	0	0	0	0	1	2	1	2	3
EEM717	2	2	2	2	1	0	2	1	1	0	0	2	3	2	3	3
EEM-812	2.2	1.6	2	0	2	0	0	0	1	0	2.2	0	3	2	3	3

Table B.3.1a

Course Articulation Matrix

MEM102	Engineering Drawing	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PS01	PS02	PS03	PS04
MEM 102.1	Understand the basic concepts of Engineering Drawing	3	2	1	1	1	0	0	0	0	0	0	1	3	3	0	3
MEM 102.2	Understand projections	3	2	1	1	1	0	0	0	0	0	0	1	3	3	0	3
MEM 102.3	Draw the section of solids, intersection of surfaces and development of surfaces	3	2	1	1	1	0	0	0	0	0	0	1	3	3	0	3
MEM 102.4	Learn isometric projections and plane geometry	3	2	1	1	1	0	0	0	0	0	0	1	3	3	0	3
MEM 102.5	Apply the concepts of engineering Drawing in the industries.	3	2	1	1	1	0	0	0	0	0	0	1	3	3	0	3
MEM102		3	2	1	1	1	0	0	0	0	0	0	1	3	3	0	3
EEM-202	BASIC ELECTRICAL ENGINEERING	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PS01	PS02	PS03	PS04
EEM 202.1	Recall basic concepts of Electrical Engineering	3	3	1	1	2	2	0	0	0	0	0	1	3	0	0	3
EEM 202.2	Explain basic concepts of AC circuits	3	3	1	1	2	2	0	0	0	0	0	1	3	2	0	3
EEM 202.3	Explain the principle of operation of	3	3	2	1	2	2	2	0	0	0	0	1	3	2	0	3

	transformer with background of magnetic circuits																
EEM 202.4	Classify and compare different types of Electrical machines	3	2	2	0	1	2	2	0	0	0	0	1	3	2	0	3
EEM 202.5	Classify different electrical measuring equipment	3	2	2	0	1	2	2	0	0	0	0	1	3	2	0	3
EEM-202		3	2.6	1.6	0.6	1.6	0	1.2	0	0	0	0	1	3	1.6	0	3
EEM-301	BASIC ELECTRONICS	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PS01	PS02	PS03	PS04
EEM 301.1	Analyze and design diode circuits	3	3	3	0	1	2	2	0	0	0	0	1	3	0	0	3
EEM 301.2	Analyze BJT based circuits	3	3	2	0	1	0	0	0	0	0	0	1	3	2	0	3
EEM 301.3	Classify BJT amplifiers and design OpAmp based liniar and nonlinear circuits	3	3	2	0	1	2	2	0	0	0	0	1	3	2	0	3
EEM 301.4	Explain concepts of digital systems and analyze combinational circuits	3	3	2	0	1	2	2	0	0	0	0	1	3	2	0	3
EEM 301.5	Analyze and design basic Sequential circuits and understand ADC, DAC concepts	3	3	2	0	1	2	2	0	0	0	0	1	3	2	0	3
EEM-301		3	3	2.2	0	1	0	1.6	0	0	0	0	1	3	1.6	0	3

EEM-305	SIGNALS AND SYSTEMS	P01	P02	P03	P04	P05	P06	P07	P08	P09	P010	P011	P012	PS01	PS02	PS03	PS04
EEM 305.1	Classify signals & systems	3	3	1	1	1	2	0	0	0	0	0	1	3	0	2	3
EEM 305.2	Analyze LTI systems' time response	3	3	1	1	1	2	0	0	0	0	0	0	3	0	2	3
EEM 305.3	Analyze the spectral characteristics of signals	3	3	1	1	1	2	0	0	1	0	0	1	3	1	2	3
EEM 305.4	Identify system properties based on impulse response and Fourier analysis.	3	3	1	1	1	2	0	0	0	0	0	1	3	1	2	3
EEM 305.5	Apply transform techniques to analyze continuous-time and discrete-time signals and systems	3	3	1	1	1	2	0	0	1	0	0	2	3	2	2	3
EEM-305		3	3	1	1	1	0	0	0	0.4	0	0	1	3	0.8	2	3
EEM-403	NETWORK ANALYSIS AND SYNTHESIS	P01	P02	P03	P04	P05	P06	P07	P08	P09	P010	P011	P012	PS01	PS02	PS03	PS04
EEM 403.1	Understand the concept of network topology and apply it for various formulations.	3	3	0	1	2	0	0	0	0	0	0	0	2	2	0	3
EEM 403.2	Apply basic circuit laws and simplify the network using	3	3	0	1	2	0	0	0	0	0	0	0	2	3	0	3

	reduction techniques and theorems.																
EEM 403.3	Understand time domain analysis and evaluate transient response, Steady state response	3	3	0	2	2	0	0	0	0	0	0	0	2	3	3	3
EEM 403.4	Understand frequency domain analysis, use Fourier transform and Laplace transform for analyzing circuits.	3	3	0	2	2	0	0	0	0	0	0	0	2	3	3	3
EEM 403.5	Define network functions and Synthesize networks using Foster and Cauer Forms.	3	3	2	3	2	0	0	0	0	0	0	0	3	3	3	3
EEM-403		3	3	0.4	1.8	2	0	0	0	0	0	0	0	2.2	2.8	1.8	3
EEM-501	LINEAR CONTROL ENGINEERING	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PS01	PS02	PS03	PS04
EEM 501.1	Define transfer function using mathematical modeling	3	3	0	0	2	1	0	0	0	0	0	2	3	0	3	3
EEM 501.2	List out control system components and define basic control actions	3	3	0	0	2	1	0	0	0	0	0	2	3	0	3	3
EEM 501.3	Analyze time response of 1st and 2nd order systems	3	3	0	0	3	2	0	0	1	0	0	2	3	2	3	3

EEM 501.4	Define stability and apply various techniques to find stability of a system	3	3	0	0	3	2	0	0	0	0	0	2	3	2	3	3
EEM 501.5	Design compensators	3	3	3	0	3	2	0	0	2	0	0	2	3	2	3	3
EEM-501		3	3	0.6	0	2.6	0	0	0	0.6	0	0	2	3	1.2	3	3
RDC581	AGRICULTURAL ENGINEERING	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PS01	PS02	PS03	PS04
RDC 581.1	Classify Agricultural Implements, identify appropriate instrument for different operations.	3	2	2	2	1	3	3	0	0	0	0	0	2	3	0	3
RDC 581.2	explain design aspects of tractors	3	1	1	1	0	3	3	0	0	0	0	0	2	3	0	3
RDC 581.3	Outline the process of Grain storage and drying	3	2	1	1	0	3	3	0	0	0	0	0	2	3	0	3
RDC 581.4	Explain various process employed in dairy	3	2	1	1	0	3	3	0	0	0	0	0	2	3	0	3
RDC 581.5	State principles of IRRIGATION ENGINEERING and design an Irrigation-Channel	3	1	2	2	1	3	3	0	0	0	0	0	2	3	0	3
RDC581		3	1.6	1.4	1.4	0.4	0	3	0	0	0	0	0	2	3	0	3

EEM-604	APPLIED SYSTEMS ENGINEERING	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO ₁	PSO ₂	PSO ₃	PSO ₄
EEM 604.1	Explain Physical Systems Theory	3	3	0	0	0	3	3	3	0	0	2	0	2	2	0	2
EEM 604.2	Develop mathematical models of systems using physical system theory	3	3	0	2	0	2	2	0	0	0	0	0	2	2	0	3
EEM 604.3	Use graph theoretical techniques for modeling of systems	3	3	0	2	2	2	2	0	0	0	0	0	2	2	0	3
EEM 604.4	Develop State space models of continuous time systems using physical systems theory	3	3	0	3	2	2	0	0	0	0	0	0	2	2	0	2
EEM 604.5	Analyze performance of systems	3	3	0	3	2	2	2	0	0	0	0	0	2	2	0	3
EEM-604		3	3	0	2	1.2	0	1.8	0.6	0	0	0.4	0	2	2	0	2.6
CEC-681	CULTURAL EDUCATION	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO1 ₀	PO1 ₁	PO1 ₂	PSO ₁	PSO ₂	PSO ₃	PSO ₄
CEC 681.1	Para-phrase meaning, scope and nature of Indian culture	0	0	0	0	0	3	2	3	0	2	0	3	1	0	3	3
CEC 681.2	Describe Pre-Vedic Harappan Culture.	0	0	0	0	0	3	2	3	0	1	0	3	1	2	3	3
CEC 681.3	Classify Indian Literature	0	0	0	0	0	3	2	3	0	2	0	3	0	2	3	3

CEC 681.4	Explain salient aspects of Indian State and Society	0	0	0	0	0	3	2	3	0	1	0	3	1	2	3	3
CEC 681.5	Paraphrase various art forms of Indian Culture	0	0	0	0	0	3	2	3	0	2	0	3	1	0	3	3
CEC 681.6	Illustrate UNITY IN DIVERSITY in Indian culture	0	0	0	0	0	3	2	3	0	1	0	3	1	2	3	3
CEC-681		0	0	0	0	0	0	2	3	0	1.4	0	3	0.8	1.6	3	3
EEM-706	ELECTROMAGNETIC FIELD THEORY	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PS01	PS02	PS03	PS04
EEM 706.1	Apply vector algebra to understand the behavior of static electric fields in standard configurations	3	3	1	0	0	0	0	0	0	0	0	1	2	1	2	3
EEM 706.2	Apply vector calculus to understand the behavior of static electric fields in standard configurations	3	3	1	0	0	0	0	0	0	0	0	1	2	1	2	3
EEM 706.3	Apply vector calculus to understand the behavior of static magnetic fields in standard configurations	3	3	1	0	0	0	0	0	0	0	0	1	2	1	2	3

EEM 706.4	Understand the time varying behaviour of electromagnetic fields	3	3	0	0	0	0	0	0	0	0	0	1	2	1	2	3
EEM 706.5	Describe and analyze electromagnetic wave propagation in free-space	3	3	1	0	0	0	0	0	0	0	0	1	2	1	2	3
EEM-706		3	3	0.8	0	0	0	0	0	0	0	0	1	2	1	2	3
EEM717	SEMICONDUCTOR CONTROLLED DRIVES	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PS01	PS02	PS03	PS04
EEM717.1	Determine performance parameters of dc drives	2	2	2	2	1	1	2	1	1	0	0	2	3	2	3	3
EEM717.2	Understand Supply side power factor and Harmonic factor control in rectifier circuits	2	2	2	2	1	1	2	1	1	0	0	2	3	2	3	3
EEM717.3	Analyze close loop control of dc motor	2	2	2	2	1	1	2	1	1	0	0	2	3	2	3	3
EEM717.4	Study VVVF sources	2	2	2	2	1	1	2	1	1	0	0	2	3	2	3	3
EEM717.5	Understand the working of VVVF fed ac drives	2	2	2	2	1	1	2	1	1	0	0	2	3	2	3	3
EEM717		2	2	2	2	1	0	2	1	1	0	0	2	3	2	3	3
EEM-812	OPERATING SYSTEMS	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PS01	PS02	PS03	PS04

EEM 812.1	Understand basic concepts of Operating Systems	1	0	0	0	0	0	0	0	0	0	0	0	3	2	3	3
EEM 812.2	Explain Process and Inter-process Synchronization	2	2	2	0	2	0	0	0	0	0	2	0	3	2	3	3
EEM 812.3	Understand Memory Management	2	2	2	0	2	0	0	0	1	0	3	0	3	2	3	3
EEM 812.4	Design Linux Operating System and Internal Structure	3	2	3	0	3	0	0	0	2	0	3	0	3	2	3	3
EEM 812.5	Learn programming in Linux Environment	3	2	3	0	3	0	0	0	2	0	3	0	3	2	3	3
EEM-812		2.2	1.6	2	0	2	0	0	0	1	0	2.2	0	3	2	3	3