

## COURSE OUTCOMES

**Course Name: ROE 086: Year of study: 2019-20**

<b>On completion of this course, the students will be able to</b>	
<b>ROE 086.1</b>	Understand the Various non-conventional energy resources and their merits and demerits.
<b>ROE 086.2</b>	Illustrate the concept of Solar Cells and Solar Thermal Energy utilization in various applications.
<b>ROE 086.3</b>	Comprehend the concept of Geothermal, Magneto-hydrodynamics (MHD) power plants and Fuel Cells & their applications.
<b>ROE 086.4</b>	Identify Winds energy as alternate form of energy and to know how it can be tapped.
<b>ROE 086.5</b>	Describe the Biomass resources and it's conversion.
<b>ROE 086.6</b>	Understand and analyze the Ocean Thermal Energy Conversion (OTEC) and Wave and Tidal Wave energy resources.

### Mapping of Course Outcome and Program Outcome

<b>CO</b>	<b>PO</b>	<b>PO 1</b>	<b>PO 2</b>	<b>PO 3</b>	<b>PO 4</b>	<b>PO 5</b>	<b>PO 6</b>	<b>PO 7</b>	<b>PO 8</b>	<b>PO 9</b>	<b>PO 10</b>	<b>PO 11</b>	<b>PO 12</b>
<b>ROE 086.1</b>		3	2	1			2	2					3
<b>ROE 086.2</b>		3	2	1			2	2					3
<b>ROE 086.3</b>		3	2	1			2	2					3
<b>ROE 086.4</b>		3	2	1			2	2					3
<b>ROE 086.5</b>		3	2	1			2	2					3
<b>ROE 086.6</b>		3	2	1			2	2					3
<b>Average</b>		<b>3</b>	<b>2</b>	<b>1</b>			<b>2</b>	<b>2</b>					<b>3</b>

### Mapping of Course Outcome and Program Specific Outcome

<b>CO</b>	<b>PSO</b>	<b>PSO 1</b>	<b>PSO 2</b>
<b>ROE 086.1</b>		1	1
<b>ROE 086.2</b>		1	1
<b>ROE 086.3</b>		1	1
<b>ROE 086.4</b>		1	1
<b>ROE 086.5</b>		1	1
<b>ROE 086.6</b>		1	1
<b>Average</b>		<b>1</b>	<b>1</b>

## COURSE OUTCOMES

**Course Name: RCE-084: Solid Waste Management**

**Year of study: 2019-20**

<b>On completion of this course, the students will be able to</b>	
<b>RCE 084.1</b>	understand solid waste management sources, types, functional elements and to explain the hierarchical structure in solid waste management and a requirement for an integrated solution.
<b>RCE 084.2</b>	select the appropriate method for transportation and handling of solid waste.
<b>RCE 084.3</b>	explain the operation and maintenance of landfill
<b>RCE 084.4</b>	examine the operation of composting and energy recovery from waste
<b>RCE 084.5</b>	describe hazardous waste and its disposal
<b>RCE 084.6</b>	gain knowledge on E-Waste and biomedical waste and their disposal

<b>CO</b>	<b>PO</b>	<b>PO1</b>	<b>PO 2</b>	<b>PO3</b>	<b>PO4</b>	<b>PO5</b>	<b>PO6</b>	<b>PO7</b>	<b>PO8</b>	<b>PO9</b>	<b>PO10</b>	<b>PO11</b>	<b>PO12</b>
<b>RCE 084.1</b>		2	1	3	-	-	-	2	-	1	-	1	2
<b>RCE 084.2</b>		2	1	3	-	2	2	2	2	2	-	1	2
<b>RCE 084.3</b>		2	1	2	-	-	2	2	-	2	-	1	2
<b>RCE 084.4</b>		2	1	2	-	-	-	2	-	2	-	1	2
<b>RCE 084.5</b>		2	1	2	-	-	2	3	2	1	-	1	2
<b>RCE 084.6</b>		2	1	2	-		2	3	2	1	-	1	2
<b>Average</b>		<b>2</b>	<b>1</b>	<b>2.3</b>	<b>-</b>	<b>2</b>	<b>2</b>	<b>2.33</b>	<b>2</b>	<b>1.5</b>	<b>-</b>	<b>1</b>	<b>2</b>

### Mapping of Course Outcome and Program Outcome

#### Course Outcome and Program Specific Outcome

<b>CO</b>	<b>PSO</b>	<b>PSO 1</b>	<b>PSO 2</b>
<b>RCE 084.1</b>			
<b>RCE 084.2</b>			
<b>RCE 084.3</b>			
<b>RCE 084.4</b>			
<b>RCE 084.5</b>			
<b>RCE 084.6</b>			
<b>Average</b>			

## COURSE OUTCOMES

**Course Name: RCE-085: Engineering Hydrology and Ground Water Management**

**Year of study: 2019-20**

<b>On completion of this course, the students will be able to</b>	
<b>RCE 085.1</b>	understand the various aspects of hydrological cycle & definitions, hydrologic systems precipitation, evaporation, infiltration and evapotranspiration.
<b>RCE 085.2</b>	analyse the direct runoff, unit hydrographs ,s-curve hydrograph, synthetic and instantaneous unit hydrographs used for the analysis of runoff.
<b>RCE 085.3</b>	analyse and estimate hydrologic and hydraulic flood routing, flood frequencies and flood forecasting.
<b>RCE 085.4</b>	analyse steady and unsteady flow through confined and unconfined aquifers, Dupuits theory, well hydraulics, mutual interference of wells, well losses, specific capacity.
<b>RCE 085.5</b>	design the water wells and pumping equipment for water wells.
<b>RCE 085.6</b>	understand ground water quality, contamination of groundwater and its control, ground water modeling techniques and ground water exploration, rain water harvesting.

Mapping of Course Outcome and Program Outcome

<b>CO</b>	<b>PO 1</b>	<b>PO 2</b>	<b>PO 3</b>	<b>PO 4</b>	<b>PO 5</b>	<b>PO 6</b>	<b>PO 7</b>	<b>PO 8</b>	<b>PO 9</b>	<b>PO 10</b>	<b>PO 11</b>	<b>PO 12</b>
<b>RCE 085.1</b>	2	2	-	-	-	2	-	-	-		-	2
<b>RCE 085.2</b>	2	2	-	-	-	2	2	-	-		-	2
<b>RCE 085.3</b>	3	2	2	1	-	2	2	2	-		-	2
<b>RCE 085.4</b>	3	3	-	-	-	2	2	-	-		-	2
<b>RCE 085.5</b>	2	2	2	1	-	2	2	-	-		-	2
<b>RCE 085.6</b>	2	2	-	-	1	2	2	-	-		-	2
<b>Average</b>	<b>2.33</b>	<b>2.17</b>	<b>2.00</b>	<b>1.00</b>	<b>1.00</b>	<b>2.00</b>	<b>2.00</b>	<b>2.00</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>2.00</b>

Mapping of Course Outcome and Program Specific Outcome

<b>CO</b>	<b>PSO</b>	<b>PSO 1</b>	<b>PSO 2</b>
<b>RCE 085.1</b>		2	2
<b>RCE 085.2</b>		2	3
<b>RCE 085.3</b>		3	2
<b>RCE 085.4</b>		2	2
<b>RCE 085.5</b>		3	2
<b>RCE 085.6</b>		3	3
<b>Average</b>		<b>2.5</b>	<b>2.33</b>

## COURSE OUTCOMES

**Course Name: RCE-086: Urban Transportation System & Planning**

**Year of study: 2019-20**

<b>On completion of this course, the students will be able to</b>	
<b>RCE 086.1</b>	understand the various aspects of social, political, and environmental role of transportation.
<b>RCE 086.2</b>	understand objective, goal and need of transportation planning.
<b>RCE 086.3</b>	learn the type of transportation systems and their applications.
<b>RCE 086.4</b>	analyse the travel demand and trip generation.
<b>RCE 086.5</b>	understand the evaluation of transport planning proposals and long and short term planning.
<b>RCE 086.6</b>	understand the various aspects of the transport management system and their applications.

Mapping of Course Outcome and Program Outcome

<b>CO</b>	<b>PO 1</b>	<b>PO 2</b>	<b>PO 3</b>	<b>PO 4</b>	<b>PO 5</b>	<b>PO 6</b>	<b>PO 7</b>	<b>PO 8</b>	<b>PO 9</b>	<b>PO 10</b>	<b>PO 11</b>	<b>PO 12</b>
<b>RCE 086.1</b>	1	-	-	-	-	1	-	-	-	-	-	2
<b>RCE 086.2</b>	2	-	-	-	-	2	-	-	-	-	-	3
<b>RCE 086.3</b>	2	2	-	-	-	3	-	-	-	-	-	2
<b>RCE 086.4</b>	3	3	-	-	-	2	-	1	-	-	-	3
<b>RCE 086.5</b>	3	2	2	-	-	2	-	1	-	-	-	2
<b>RCE 086.6</b>	2	2	-	-	-	2	-	-	-	-	-	2
<b>Average</b>	<b>2.17</b>	<b>2.25</b>	<b>2.00</b>	-	-	<b>2.00</b>	-	<b>1.00</b>	-	-	-	<b>2.33</b>

Mapping of Course Outcome and Program Specific Outcome

<b>CO</b>	<b>PSO</b>	<b>PSO 1</b>	<b>PSO 2</b>
<b>RCE 086.1</b>	2	2	2
<b>RCE 086.2</b>	2	2	2
<b>RCE 086.3</b>	3	2	2
<b>RCE 086.4</b>	3	3	3
<b>RCE 086.5</b>	3	3	3
<b>RCE 086.6</b>	3	3	3
<b>Average</b>	<b>2.67</b>	<b>2.5</b>	