

**DEPARTMENT OF MECHANICAL ENGINEERING**

**Academic Year -2021-22**

**Course Outcomes**

**B.TECH.7<sup>th</sup> SEM**

**RURAL DEVELOPMENT:  
ADMINISTRATION AND  
PLANNING (KHU701)**

Course Outcome (CO)	Details of Course Outcomes
(CO1)	Students can understand the definitions, concepts and components of Rural Development
(CO2)	Students will know the importance, structure, significance, resources of Indian rural economy.
(CO3)	Students will have a clear idea about the area development programmes and its impact.
(CO4)	Students will be able to acquire knowledge about rural entrepreneurship.
(CO5)	Students will be able to understand about the using of different methods for human resource planning.

**Additive manufacturing (KME 071)**

Course Outcome (CO)	Details of Course Outcomes
(CO1)	Understanding the basics of additive manufacturing/rapid prototyping and its advantages and disadvantages
(CO2)	Understanding the role of additive manufacturing in the design process and the implications for design
(CO3)	Understanding the processes used in additive manufacturing for a range of materials and applications
(CO4)	Understand the various software tools, processes and techniques that enable advanced/additive manufacturing and personal fabrication.
(CO5)	Apply knowledge of additive manufacturing for various real-life applications

## **Mathematical Modeling of Manufacturing Processes (KME 073)**

<b>Course Outcome (CO)</b>	<b>Details of Course Outcomes</b>
<b>(CO1)</b>	Understand the fundamentals of manufacturing processes, mathematical models and their solutions
<b>(CO2)</b>	Understand unconventional and conventional machining, their discrete-time linear, non-linear models and solutions
<b>(CO3)</b>	Analyze the mechanism of forming and heat transfer in welding
<b>(CO4)</b>	Apply the principles of casting, powder metallurgy, coating and additive Manufacturing
<b>(CO5)</b>	Understand the fundamental of heat treatment, micro / nano manufacturing and processing of non-metallic materials.

## **RENEWABLE ENERGY RESOURCES (KOE074)**

<b>Course Outcome (CO)</b>	<b>Details of Course Outcomes</b>
<b>(CO1)</b>	Understand the classification, importance, and potential of various renewable energy sources in the context of sustainable development.
<b>(CO2)</b>	Explain the working principles, components, and applications of solar energy systems including PV and thermal technologies.
<b>(CO3)</b>	Analyze the principles, design, and operation of wind energy conversion systems and their integration into power grids.
<b>(CO4)</b>	Describe the generation of energy from biomass, biogas, and other bio-energy sources along with their environmental benefits.
<b>(CO5)</b>	Explore the working and scope of hydro, tidal, wave, and geothermal energy systems.

## Measurement & Metrology Lab (KME 751)

Course Outcome (CO)	Details of Course Outcomes
(CO1)	Understand the basic principles of instrumentation for measurement of surface finish, strain, temperature, pressure and flow.
(CO2)	Understand the principle and operation of Coordinate Measuring Machine (CMM)
(CO3)	Apply Sine Bar, Slip Gauges, Bevel Protractor, Stroboscope, Dial Indicator etc. for measurement of different attributes.
(CO4)	Apply the basic concepts of limits, fits & tolerances for selective assembly.

## Mini Project (KME-752)

Course Outcome (CO)	Details of Course Outcomes
(CO1)	Identify and define a problem based on current engineering challenges or innovations.
(CO2)	Apply core engineering concepts and technical knowledge to design and develop a functional mini-project.
(CO3)	Utilize appropriate tools, equipment, and software to implement and test project components.
(CO4)	Work effectively in a team environment, demonstrating collaboration and time management.
(CO5)	Prepare technical documentation and deliver presentations effectively, showcasing problem-solving and critical thinking skills.

## Project (KME-753)

Course Outcome (CO)	Details of Course Outcomes
(CO1)	Identify real-world engineering problems and formulate project objectives with relevance to industry or societal needs.
(CO2)	Apply interdisciplinary knowledge and engineering principles to design viable solutions.
(CO3)	Use appropriate tools, technologies, and modern software for the development and analysis of the project.
(CO4)	Demonstrate effective teamwork, project planning, time management, and documentation skills.
(CO5)	Communicate technical findings through well-structured reports, presentations, and viva-voce with ethical and professional responsibility.