The maxx-solar-online-academy

Basic Course

Learning Goals and Content of the Course

Course Content as per Modules	Learning goals / Short description
Module 1 – Introduction	**You will get an introduction into the maxx-solar-online-academy and the course itself.**
Module 2 - Solar power sector perspective ○ Historic use of energy ○ Solar PV – a brief history ○ Market outlook ○ Technology update	**You are able to tell about the history of Solar Energy development.** **You are able to put Solar Energy into comparison with other forms of Energy Sources and know the benefits of it.** **You are able to communicate the latest market and technology developments.**
Module 3 - Basic electrical concepts ○ How electricity works ○ The four main aspects of electricity ▪ Potential-difference ▪ Current ▪ Power ▪ Energy ○ Power and Energy ○ DC and AC power ○ Applied in a Solar system ○ Connections series and parallel	**You understand potential-difference, current, power and energy.** **You are able to calculate easy examples on how much energy or power a specific electrical appliance is using.** **You understand what the difference between AC and DC current and can define those words.** **You understand the different aspects of electricity and how it applies to a Solar System.** **You understand parallel and series connections and calculate how it affects potential difference and current in a circuit.**
Module 4 - PV Technology ○ Photovoltaic effect ○ PV Module manufacturing process ○ PV Technology development ○ Progress of photovoltaic technology	**You are able to describe what a PV Module is made of, and understand the Photovoltaic effect.** **You know about the different technologies that is available.**

Module 5 - Energy Storage ○ Load profiles ○ Why storage is required and its application ○ Energy balance between generation and load profiles.	**You understand why energy storage is required and how it functions.**
Module 6 - Solar components and functions ○ Solar Module ▪ Components and construction of a Solar Module ▪ Solar Module – Physical and electrical characteristics ○ Batteries ▪ Common battery types ▪ Lead acid battery technologies ▪ -Lithium-ion battery technologies ○ Inverters ▪ PV inverters ▪ Battery inverters ○ Charge controllers	**You are able to name and describe all components that a solar system can have.** **You can name different storage technologies and understand it's characteristics.** **You can tell the difference between a PV Inverter and a Battery inverter. You understand the functions and features of PV and battery inverters.** **You know what a charge controller is and what is functions in a PV System are.**
Module 7 - Solar system configurations ○ System configurations ○ Solar PV grid-connected system ○ Solar PV off-grid system ○ Solar PV off-grid system: Multiple sources	**You know now what different types of PV Configurations exist.** **You can tell the difference between on-grid and off-grid systems.**
Module 8 - Solar resource ○ Energy from the sun ○ Specific solar yield & yield maps ○ Peak sun hours ○ Solar Radiation, Direct and diffuse radiation ○ Seasonal effects	**You understand the advantages and magnitude of solar energy as a an energy resource.** **You can define: Solar Yield, Solar Peak Sun Hours and Solar Radiation.** **You understand how seasons and the location on earth affects solar energy.**
Module 9 - Solar system performance and yield ○ Solar system yield ○ Solar yield maps	**You know the basic concept of how a solar system should be maintained and placed on a roof.** **You know how the orientation and inclination of a Solar Panel affects energy production.**

○ Solar panel orientation and inclination ○ Shading ○ Maintenance ○ Irradiance vs heat	**You are able to understand what maintenance means for Solar Systems.** **You understand the difference between irradiance and heat.**
Module 10 - PV System Operations and maintenance ○ Lifespan of a solar plant ○ Good practice ○ Operation and Maintenance	**You will have a good understanding of the expected lifespan of solar systems and individual components.** **You will have a good understanding of what maintenance are required on solar system and how to ensure a solar system performs according to expectations.**
Module 11 - Markets and Pricing ○ Simple payback ○ Levelized cost of Energy ○ Value Proposition of solar power	**You are able to make a basic calculation example and understand why these financial methods are important for Solar Business and Solar Understanding in general.** **You are able to define: Levelized Cost of Energy and Value Proposition of Solar Power.**
Module 12 - Solar is the Future- conclusion	**You will be able to tell the different market segments that exist in the Solar Industry.** **You will have an idea on what Jobs exist in the Solar Industry and what the maxx-solar-online-academy can do for your career path.**

Do you have any questions? Please write to:

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