WM9P6-15 Renewable Energy - Project Engineering

25/26

Department
WMG
Level
Taught Postgraduate Level
Module leader
Sabarinath Krishnan
Credit value
15
Module duration
20 weeks
Assessment
100% coursework
Study location
Azerbaijan State Oil & Industry University, Baku, Azerbaijan

Description

Introductory description

Project engineering competence is essential for professional engineers to succeed in the renewable energy sector. The many evolving technologies rely on “projects” to bring them into practical application within the overall global energy system. This module will not only teach the core principles, tools, and techniques of Project Engineering but will also enable students to develop experience in their application through the use of interactive simulation software. The module will be delivered through a combination of face-to-face lectures, seminars and online guided synchronous and asynchronous learning.

Module aims

A project engineer provides the liaison between project management and the technical disciplines involved in a project, and as such they must have good knowledge and understanding of both managing a project and its engineering/technical aspects. This module will develop the student’s practical and professional capability in project engineering within the renewable energy engineering domain, supported by an understanding of the underlying theory and knowledge of project engineering tools and their application.

Outline syllabus

This is an indicative module outline only to give an indication of the sort of topics that may be covered. Actual sessions held may differ.

- Engineering project safety tools and techniques
- Project definition and execution plan development
- Critical path analysis
- Scheduling
- Co-ordination of engineering resources and subcontractors
- Stakeholder Engagement
- Negotiation Skills
- Functional requirement
- Subcontractor evaluation and selection
- Time and cost estimation
- Managing risk and uncertainty
- Quality Management
- Project controls and leadership
- Earned value analysis
- Project handover, closure and review
- Types of project engineering and management software
- Practical applications of project engineering theory using simulation software

Learning outcomes

By the end of the module, students should be able to:

- Demonstrate a systematic and comprehensive understanding of engineering project engineering theory, methods, and techniques, as applicable to renewable energy project engineering.
- Apply network analysis techniques to model, analyse, and manage a complex renewable energy engineering project.
- Provide effective technical and commercial leadership in the field of renewable energy project engineering through the successful completion of a simulated, multi-faceted, and dynamic project scenario
- Evaluate, select and apply appropriate management and business tools and techniques, including: evaluation and management of project risk; progress reporting, scheduling, and review; and “earned value” analysis.

Indicative reading list

Reading lists can be found in Talis

International

This module is part of the MSc Renewable Energy program delivered at the Azerbaijan State Oil &

Industry University in Baku, Azerbaijan.

Subject specific skills

- Project planning
- Resource allocation
- Project scheduling
- Project control
- Project risk management
- Critical path analysis
- Earned value analysis
- Contractor management
- Use of project management software

Transferable skills

- Systems thinking
- Adaptability
- Problem solving
- Reflective thinking
- Evaluation and judgement
- Decision making
- Leadership

Study

Study time

Type	Required
Lectures	15 sessions of 1 hour (17%)
Supervised practical classes	15 sessions of 1 hour (17%)
Online learning (scheduled sessions)	12 sessions of 1 hour (13%)
Online learning (independent)	12 sessions of 1 hour (13%)
Private study	36 hours (40%)
Total	90 hours

Private study description

Directed by a module study guide issued at the start of the module. This will direct students to relevant text and journal readings and other learning activities, including flipped classroom activities, with indicative time allocations for each.

Costs

No further costs have been identified for this module.

Assessment

You must pass all assessment components to pass the module.

Assessment group A

	Weighting	Study time	Eligible for self-certification
Assignment	100%	60 hours	Yes (extension)
A project engineering software simulation exercise which requires the management of a case study project with a subsequent report detailing and justifying the actions taken during the simulation.			

Feedback on assessment

- Verbal feedback given during seminar/tutorial sessions,
- The PROMIST simulation software provides automatic feedback on performance as it is used.

Availability

There is currently no information about the courses for which this module is core or optional.