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|--------------------------------|---|---|---|---|---|
| PIPM8001 | Fuel and Water Resources Management | L | T | P | C |
| Version 1.0 | | 3 | 0 | 0 | 3 |
| Pre-requisites/Exposure | Basic Knowledge of International Trade | | | | |
| Co-requisites | Students must hav Basic Knowledge of General Management | | | | |

Course Objectives

1. To help the students to understand the scope & need for Fuel and Water resources
2. To enable students to apply these concepts at the Power Management Domain.
3. To provide the students to understand Fuel supply demands of Power Industry for further action.
4. To enable students to synthesize related information and evaluate options for the most logical solution.

Course Outcomes

On completion of this course, the students will be able to

- CO1. Demonstrate conceptual understanding in the process and perspectives of Fuel and Water resources.
- CO2. Specify the needs of the Fuel supply for power Industry and find solutions.
- CO3. Assess the specific needs of inputs used for better Fuel supply agreement.
- CO4. Identify and integrate logistics and supply chain procedures for fuel supply.

Catalog Description

The main objective of Fuel and water resources management course is to help the students to acquire and develop skill to take rational decisions in the area of Fuel and water resources management which is linked to Power Management. With evolution of economy, Fuel options, different countries have been using various fuels for power generation. However, better fuel supply practices have evolved where standard logistics and supply chain procedures need to be understood.

The Power Management Manager needs to design efficient procedures to facilitate for fuel supply and formulate good fuel supply agreement. The Manager should also have basic knowledge in regard to payment terms between and buyers and sellers in international trade along other stakeholders like banks, insurance companies, surveyors and inspection agencies.

The course focuses on identification of critical issues and framing of strategies & scenarios required to select and develop scarce resources.

Classroom activities involving lectures, discussions & case studies (topped up with role play) will be designed to encourage students to get involved and absorb & assimilate inputs. These activities will also be supplemented by group discussions, cooperative group solving problems, analysis of video scenes and debates.

Class participation is a fundamental aspect of this course. Students will be encouraged to actively take part in all group activities and to give an oral group presentation. Students will be expected to interact with media resources, such as, web sites, videos, DVDs, and newspapers etc.

Course Content

3 lecture hours

Fossil fuels – Coal, Oil and Gas, Alternate Fuel options

Unit I: 9 lecture hours

Storage, Transportation and Safety Issues of Fuels, Logistics and Supply chain Management of Fuel, Multimodal transportation of Fuel, Contract and Fuel supply agreement

Unit II: 6 lecture hours

Economics of generation based on different fuels, cost management strategies, inventory control on fuel

Unit III: 6 lecture hours

Different types of Coal, its procurement and costing, Coal policy, Regulation and economics. International scenario and Policy, Indian Coal vs Imported Coal, Coal import policy and Procedure.

Unit IV: 6 lecture hours

Nuclear fuels- Availability, Safety, Transportation and Storage problems, policies and economics

Unit V: 9 lecture hours

LNG and Gas as fuel for power plants, availability and economics of LNG and Gas, Transportation and storage problems

Text Books

1. Schernikau, L. (2010). *Economics of International Coal Trade- The renaissance of Steam Coal* (1st ed.). New York: Springer.

Modes of Evaluation: Quiz/ Project submission/ presentation/ Class room and case discussion/ Written Examination

Examination Scheme:

| Components | Continuous Evaluation | | | ESE |
|----------------------|-----------------------|---------------------------------|--|-----------|
| | Quizzes | Case Study and class discussion | Group Project Presentation/ Submission | ESE |
| Weightage (%) | 10 | 20 | 20 | 50 |

Relationship between the Course Outcomes (COs) and Program Outcomes (POs)

| Mapping between COs and POs | | |
|------------------------------------|---|-------------------|
| | COURSE OUTCOMES (COs) | POs |
| CO 1 | Demonstrate conceptual understanding in the process and perspectives of Fuel and Water resources. | PO 1,3,4,8,11 |
| CO 2 | Specify the needs of the Fuel supply for power Industry and find solutions | PO 1,2,3,5,6,8,11 |
| CO 3 | Assess the specific needs of inputs used for better Fuel supply agreement | PO 1,2,8,9,10,12 |
| CO 4 | Identify and integrate logistics and supply chain procedures for fuel supply | PO 1,2,3,5,7,8 |

Program outcomes/ Course outcomes

| Course Outcomes | CO1 | CO2 | CO3 | CO4 |
|------------------------|------------|------------|------------|------------|
| PO1 | 3 | 3 | 3 | 3 |
| PO2 | 1 | 1 | 2 | 3 |
| PO3 | 3 | 3 | 3 | 3 |
| PO4 | 3 | 3 | 3 | 3 |
| PO5 | 1 | 3 | 1 | 3 |
| PO6 | 2 | 1 | 2 | 3 |
| PO7 | 1 | 1 | 3 | 3 |
| PO8 | 3 | 3 | 3 | 3 |
| PO9 | 1 | 1 | 2 | 1 |
| PO 10 | 1 | 2 | 2 | 1 |
| PO11 | 2 | 2 | 2 | 2 |
| PO 12 | 1 | 1 | 2 | 1 |

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|-------------|--------------|--|--|--|--|--|---|--|--|---|---|--|--|
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| Course Code | Course Title | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PSO9 | PSO10 | PSO11 | PO12 |
| | | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 1 | 2 | 2 | 1 |
| | | Students will demonstrate strong conceptual knowledge in Port & Shipping domain. | Students will demonstrate effective understanding of relevant domain areas of maritime business. | Students will demonstrate analytical skills in identification and resolution of problems pertaining to Port & Shipping and general Management. | Students will be able to develop and evaluate alternate managerial decisions and identify optimal solutions in Port & Shipping domain. | Students will demonstrate effective application capabilities of their conceptual understanding to the real world business situations in Port & Shipping. | Students will exhibit the ability to integrate functional areas of Management with Port & Shipping perspective for the purpose of planning & decision making, implementation and control. | Students will have global perspective towards business situations in the area of Port & Shipping sector. | Students will demonstrate effective oral and written communication skills in the professional. | Students will be able to work effectively in teams and demonstrate team working capabilities. | Students will exhibit leadership and networking skills. | Students will demonstrate sensitivity towards ethical and moral issues and have ability to address them in the course of business. | Students will demonstrate deployable traits and skills in line with the latest needs of the Port & Shipping industry |

3 = Strongly Mapped

2 = Moderately Mapped

1 = Weakly Mapped

Model Question Paper

| | | | |
|--|--|-----|---------|
| Name: | | | |
| Enrolment No: | | | |
| Course: PIPM8001 – Fuel and Water Resources Management Programme: M.B.A Power Management Time: 3 hrs. | | | |
| Semester: ODD-2017-18 Max. Marks: 100 | | | |
| Instructions: | | | |
| Attempt all questions from Section A (each carrying 2 marks); any Four Questions from Section B (each carrying 5marks). Two from Section C (each carrying 15 marks). Section D is compulsory (30 marks) | | | |
| Section A (All Questions are Mandatory) | | | |
| 1 | Expand FSRU | [2] | CO 1 |
| 2. | Expand SCCL | [2] | CO 1 |
| 3. | What is Bill of Entry? | [2] | CO 1 |
| 4. | Anti-Dumping Duty? | [2] | CO 1 |
| 5. | What is API 4? | [2] | CO 1 |
| 6. | What is JCC? | [2] | CO 1 |
| 7. | Explain INCOTERMS | [2] | CO 1 |
| 8. | Explain Despatch | [2] | CO 1 |
| 9. | Define FSA | [2] | CO 1 |
| 10. | Proforma invoice | [2] | CO 1 |
| SECTION B write short notes Answer all questions. 5 x 6 = 30 marks | | | |
| 1. | Write about various functions of Bill of Lading? | [6] | CO 2 |
| 2. | What is Letter of Credit? Suggest which would better letter of credit from seller's point of view? | [6] | CO 3 |
| 3. | Discuss about India's dependence on imported Coal for power generation | [6] | CO 2 |
| 4. | Discuss about principal documents required for filing at Customs for import of Coal in India | [6] | CO 3 |
| 5. | Discuss about a range of factors hindering import of LNG and factors which could drive LNG growth in India | [6] | CO 2 |
| SECTION C ANSWER BRIEFLY 2 X 10 = 20M MARKS | | | |
| 7. | Write in detail about various pricing mechanisms for LNG in the world? | 10 | CO 2,3, |
| 8. | Analyse about various sectors depending on Coal in India? | 10 | CO2,3,4 |
| | | | |

| SECTION D Case study | | | |
|-----------------------------|--|-------------|-------------|
| 10. | <p>The following are the specifications agreed for purchase of coal from Indonesia on FOB basis.</p> <p>Quantity of shipment= 5000 tonnes. Price US \$ 60 per MT on FOB basis from Indonesia.</p> <p>Calorific value= 5500 Kcal/kg +/- 100 k Cal. If calorific value less than 5200 kcal/kg cargo reject.</p> <p>Total moisture 25 % max if Total moisture greater than 29% then cargo is rejected.</p> <p>Ash 8 % max</p> <p>Volatile matter 22 % max.</p> <p>From the above assumptions</p> <ol style="list-style-type: none"> 1. Please discuss if total moisture is 27% then what would the buyer do and what would be the deductions? 2. With assumptions please discuss what will be deductions if calorific value is 5300 Kcal/kg? <p>Marks for above would be given for logic and steps along with calculations.</p> | [30] | CO 4 |