MODULE TITLE	**ENGINEERING MANAGEMENT**
Nominal Duration	One Module
Module Code or Number	EB 070
Module Purpose	To enable students to analyse management/supervisory situations in case studies with engineering organisations, referring to possible problem solving strategies, leadership styles, staff selection procedures and factors affecting employment conditions.
Relationship to Competency Standards	This module will be modified in line with the requirements of the National Metals and Engineering Standards when they become available. The module contains the knowledge and skills identified and agreed by all states/territories. It has been developed on the assumption that these will be reflected in the Standards.
Prerequisites	Nil
Summary of Content	1. <u>Introduction to Organisational Management Roles/Functions, Characteristics and Responsibilities</u> Principles, concepts and basic definitions of terms such as organisation, operatives and Role and functional differences between first line, middle and top management including; international roles of figurehead, leader and liaison; informational roles such as monitor; disseminator and communication/ spokesperson; decisional roles such asentrepreneur, disturbance handler, resource allocation and negotiator; specific differences between functional and general management roles. With particular emphasis on first line management, the management functions of planning, organising, leading and staffing, directing and controlling. Also variations of conceptual, people and technical job related skills at first line, middle and top management.

With particular emphasis on first line management levels, organisational responsibilities to owners, employee, customer/ clients/end product users, the law, and to the public and government.

Human qualities required to be a successful first line manager such as initiative, self-confidence, integrity and ethics, patience and an open mind.

With particular emphasis on first line management, organisation culture which includes such characteristics as individual initiative, risk tolerance, direction, integration, management support, control, identify reward system, conflict tolerance and communication pattern, and all these influences on the functioning of management.

2. Problem Solving and Decision Making

The difference between symptoms and causes of problems; defining problems; specifying problems in terms such as cost, quality and quantity.

The Contingency Approach which differentiate between programmed and non programmed decisions, as well as rational and bounded rationality problem solving decision making.

The steps in the decision making process; brainstorming, group-think; how and when to involve groups such as Nominal Groups, The Delphi Techniques.

Practical problem solving and decision making integration in the engineering workplace environment involving decision alternative of certainty risk and uncertainty.

3. Introduction to Human Behaviour

Understanding factors of human behaviour; definition of terms, physical and psychological factors, why people work in engineering industries.

Concepts and theories of motivation; content and process approaches, critical analysis of applicability of significant theories of motivation and human behaviour to the engineering workplace.

People in organisations; individual and group behaviour, formal and informal groups, inter-personal relations and behaviours in organisations.

Managing/supervising people (as distinct from tasks or projects); the role of the manager/supervisor, applying the theory; situational and contingency approaches, including managing conflict; functional and dysfunctional aspects of conflict; resolving conflict using problem solving techniques.

4. Leadership and Discipline

Theories, types and styles of leadership; appropriateness of styles, advantages and disadvantages.

Effective leadership in the engineering workplace; application and evaluation of leadership styles.

Managing and leading - differences; authority, responsibility, power, delegation; use of decision making processes - meetings, advisory groups, consultative groups, executive groups.

Discipline and inter-personal, relations; manager-staff relations, disciplinary processes and purposes, self discipline in organisations.

5. Staff Selection and Personnel Procedures

Engineering job analysis, design and description; duties, responsibilities, authority; job requirements - qualifications, specific aptitudes and experience, achievements; effect of award restructuring on engineering job descriptions.

Engineering staff selection processes; establishing appropriate process, panel, selection criteria; advertising vacancy, matching applicants to criteria; interviewing - preparation, the setting, questions, making the selection, modifying successful and unsuccessful applicants.

Appointment of engineering staff and conditions of employment; staff placement and induction; role and responsibility of engineering managers/supervisors in the application of relevant industrial awards.

Delivery

Suggested teaching/learning strategies

1. INDUSTRY REFERENCE

   The student will achieve a greater understanding of the outcome of this Module if the content and assessment criteria are applied directly to examples and case studies in the engineering industry of his/her current or prospective employment.

2. GROUP ACTIVITIES

   The case studies and examples used should, however possible, be applied to group discussion and simulation/role play activities as the student can experience aspects of the Module content which can be transferred to their workplace when appropriate.

Learning Outcomes

On completion of this module the learner will be able to:

Learning Outcome 1

Explain and apply the skills involved in and the factors required for the effective roles, functions, responsibilities and interrelationship of first line, middle and top management within the engineering organisations total environment.

Assessment Criteria

Analyse and assess the management/supervisory situations in the case studies.

Describe the positive and negative effects of these management/supervisory factors on the situations in the case studies.

Present examples of the factors of engineering techniques of management/supervision as would be most appropriately applied in the given example.

Conditions

Assessment Method

Given case examples relating to an engineering workplace, examine and discuss the roles, functions, characteristics and responsibilities of engineering technical managers/supervisors.

Learning Outcome 2	**Explain and differentiate between problem symptoms and problem causes as well as outlining and effectively applying the steps in the decision making process relevant to the organisation's effective and efficient functioning.**
Assessment Criteria	Analyse and assess the situation in the case studies. List possible decision making and problem solving strategies that could apply. Discuss the application of specific strategies to the case situations. Describe the process of applying one specific strategy considering the variety of outcomes and contingencies that could arise.
Conditions	
Assessment method	Given case studies examine and analyse problem solving and decision making techniques in an engineering workplace.
Learning Outcome 3	**Recognise factors affecting human behaviour in the workplace and motivate employees by understanding their needs.**
Assessment Criteria	Give accurate assessment of the general situation. List possible motivational strategies that could be applied to the situation. Select optimal strategy. Justify selection and recommend how that strategy could gain acceptance in that situation. Recommend how selected strategy could be implemented.
Conditions	
Assessment method	Case studies to enable identification of factors affecting human behaviour in the workplace.

Learning Outcome 4	**Demonstrate effective leadership by recognising leadership styles and the situation for the application of the appropriate style.**
Assessment Criteria	Describe, compare, analyse and discuss the leadership styles described in the case studies. Relate the case studies to responsibility, authority, power and delegation with respect to the leadership role of an engineering technical manager/supervisor. Student to suggest and support a particular approach to discipline that could be effectively applied to the given case example in an engineering workplace.
Conditions	
Assessment method	Using case studies, examine and discuss different examples of leadership styles in the engineering workplace.
Learning Outcome 5	**Apply effective staff selection procedures and demonstrate a knowledge of the relevant industrial awards and conditions of employment.**
Assessment Criteria	Develop and present a written job description, selection criteria and advertisement for the engineering position in the case example. Demonstrate an understanding of interview preparation and interviewing techniques through participation in a simulated interview in both interviewer and interviewee roles. Recommend an appointment to the engineering position in the case example based on developed selection criteria and applications received. Describe the employment conditions relating to the engineering position in the case example by reference to the relevant industrial award and the manager/supervisor's role in implementing these requirements.
Conditions	
Assessment method	Examine and discuss the staff selection process applicable to a given case study in an engineering industry.

Suggested Learning Resources

Text

A suitable text is:

C.S George & K Cole, **SUPERVISION IN ACTION, THE ART OF MANAGING**, 3rd Ed., Prentice - Hall Australia, 1992.

References

D. Jeffrey, **COMMUNICATIONS, INDUSTRIAL RELATIONS, HEALTH AND SAFETY IN ENGINEERING**, Prentice - Hall Australia, 1991.

S.P. Robbins, **TRAINING IN INTERPERSONAL SKILLS**, Tips for Managing People at Work, Prentice - Hall International, 1989.

