Psychology of Learning

Course overview

In 21st century, engineering/technical education faces significant challenges as it requires meeting the demands of technical profession and emerging job market. According to 'Washington Accord' the engineering graduates are required to acquire both the domain knowledge as well as a set of other skills, which calls for a total up-gradation of our curricula and learner preparation programme/s. The revised curricula should be a well – integrated version of experiential activities, interdisciplinary perspectives; focus on skills like problem solving, communication, team work, life- long learning and reflective thinking; take a systems approach, stress on design with proportionate combination of cognitive science, educational psychology, learning science and pedagogy . This course, through the relevant contents, e.g. learning, motivation, memory, cognition, , and learning science, would help the learners not only to understand the dynamics of outcome- based and collaborative learning, but also to apply these principles for effective team projects, and career success.

Course objectives

The students would be able to-   **Total Lecture Hours: 41**

1. Become self- motivated learner, develop effective study skills, and can self-monitor and regulate their academic behavior successfully;

2. Differentiate among various learning modalities and can constructively redesign their own learning experiences;

3. Develop reflective thinking, problem solving and collaborative learning skills to actively participate in team projects.

4. Develop teaching-learning skills, persuasive communication and negotiation skills that would help them in prospective industry-based training & development, research and teaching jobs as well.

Part-I: Learning Principles

Unit - I: Introduction to Psychology of Learning

I.   Learning: Theories and Applications   **06 hrs**

a) Behavioural Learning theories
b) Cognitive-, Bruner, Gagne
c) Constructivist-, Piaget, Vygotsky

II. Motivation: Concept and types
   a) Maslow's Need Hierarchy theory(Humanistic Approach)
   b) Achievement Motivation & Goal Orientations
   c) Learner's Self-regulation & Self-Efficacy

Unit-II: Memory & Cognition   **04 hrs**

I. Information Processing Model of Memory-
   a) Sensory Memory, Working Memory, Long-term Memory
   b) Cognitive load & Meta-cognition
   c) Critical & Reflective thinking, Problem solving and Concept-mapping

Unit-III: Learners' Diversity & Inclusive Education

I. Learners' diversity in the classroom   **05 hrs**
II. Different Learning styles & approaches
III.Meeting the Learners' Diverse Needs

IV. Advantages of inclusive education for individuals and society

V. Education for Sustainable Development

Part-II: Learning in Practice

Unit-IV: Learning Sciences

I. Transformative Learning-(TL)   **04 hrs**

a) Transformative Learning Theory
b) Facilitating TL :Engaging Emotions
c) Simulated Learning

II. Experiential Learning-(EL)

a)Theoretical Foundations of EL   **04 hrs**
b)Dynamic Debriefing
c) EL Methodologies
d) Applications of EL

III.   Multimedia Learning-(ML)

a) Theoretical Foundations of ML   **04 hrs**
b) Basic Principles of ML
c) Applications in E-learning Contexts
d) Virtual Learning

IV. Social Interaction and Collaborative Learning

a) Web-based Learning (WBL)   **05 hrs**
b) Integrated E-Learning (IEL)
c) Blended Learning with Flipped Instruction
d) Project-based Learning (PL)
e) Problem-based Learning (PBL)

V. Personalized Learning- (PL)   **04 hrs**

a) Game-based Learning (GBL)
b) Self-directed Online Learning (SOL)
c) Mobile Learning (ML)

Unit-VI: Practical Assignments   **05 hrs**

Suggested Books:

1. Biehier, R.F. & Snowman, J., Psychology Applied to teaching, Houghton MIflin, New York, 1997.

2. Good T., Educational Psychology, Longman, New York, 1990.

3. Helen, B. ,& Rhona, S. Rethinking Pedagogy for a Digital Age, Routledge Publn. ,London & New York,2007.

4. Lindgren, H.C. Educational Psychology in? The classroom, Oxford University Press, New York, 1980.

5. Mangal, S.K. Advanced Educational Psychology, Prentice Hall of India, New Delhi, 2002.

6. Salvin, R, Educational Psychology. Theory into Practice, Prentice hall, Englewood Cliffs, N.J., 1990.

7. Susan, A. et al. How Learning Works: Research-Based Principles for Smart Teaching, Jossey- Bass, 2010, Wiley Publn.

8. Woolfolk, A. Educational Psychology. Allyn & Bacon, Bosson, 1998.