<h1 style="text-align:center">Seminar on "Effective Learning"</h1>

<p style="text-align:center">6 January 2011, VMCC Auditorium, 2.00 pm</p>

The seminar aims to "create a culture of effective learning" in which learning expectations are specified, learning fundamentals are explained, and help and directions are provided to learners for enhancing the effectiveness of their learning experiences.

Such a culture would project the learning expectations to learners as they enter IITB and would form a context for the learning and teaching activities. In some sense, the culture would constitute the **new paradigm for learning** at IITB.

1. What is Knowledge—Levels of Learning (Prof A Pandey, SOM)

In 1950's a committee of educators identified different levels of learning skills. Known as Bloom's taxonomy, it has 6 levels—Remembering, Understanding, Application, Analysing, Evaluating and Creating. The last 3 levels are known as Higher Order Thinking Skills (HOTS).

Actions that constitute thinking at each of the levels were identified interactively and explained. Corresponding action verbs were listed.

2. Principles of Learning and Thinking

The learner should be conscious of her own learning processes and know how to align her learning activities with them. She should also know principles of systematic thinking.

2(a) The Process of Learning (Prof D M Dhamdhere, CSE)

In the cognitive model of learning, the long term memory stores knowledge in terms of *schemas*, i.e., patterns and concepts. Hence learning is alteration in the long term memory of the learner. The medium term memory can contain only 7 items of information for a few seconds. Hence the schemas should be formed quickly and transferred to long term memory. Instruction should simplify formation of schemas otherwise learning would not be perfect.

Theories of learning aim to reduce the effort in learning through various means. Some of these are:

- Prior knowledge, existing as schemas, should be activated so that new schemas can be formed effectively

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- Learner should develop a structure for knowledge

- Peer discussion helps in schema formation.

2(b) How to Represent Knowledge (Prof B L Tembe, Chemistry)

A *concept map* depicts the conceptual relationships between entities. It provides a visual description that is easy to recall and use, and can be easily extended as new knowledge is acquired. The concept map can be structured hierarchically.

2(c) How to Organize One's Thinking (Prof D M Dhamdhere)

To think systematically about an issue, one should follow a method of identifying the key theories and principles related to the issue, making observations and drawing inferences that help in addressing the issue.

The *Vee diagram* by Novak was introduced as a tool for systematic thinking and its use was demonstrated to respond to sample queries. The 6 levels of learning were related to steps in using the vee diagram.

2(d) Effective Thinking in the Real World (Prof D M Dhamdhere)

Critical thinking was introduced as a methodology for deciding how to think in a given situation. Critical thinking is purposeful and reflective judgement about what to believe and what to do in response to observations, experiences, and arguments.

Applications of critical thinking in Internet search to operate at various levels of thinking—the 6 levels in Bloom's taxonomy—was described. Use of critical thinking in team work was also discussed.

3. Peer Learning (Prof G Ramakrishnan, CSE)

The peer learning techniques that learners can use to enhance their own learning were described. A hands-on experience was provided in use of peer learning techniques in solving a problem. Linkages were developed with thinking skills and the 6 levels of thinking.

4. Time Management in Learning (Mr Deepak Bharwani, Pragati Leadership)

Urgency indicates lack of planning. The importance of planning the learning activities was emphasized through discussion and examples.