

## Annex VII – C: Student-centred teaching and learning methods in the subject areas of Engineering

Categories of Learning outcomes	General student-centred teaching and learning methods recommended by SLQF	Specific Student-centred teaching and learning methods in Engineering
<b>1. Subject / Theoretical Knowledge</b>	Independent learning activities, interactive lectures, team-based learning, and other small group activities	<p>Outcome based learning philosophy. Lecture sessions comprised of scholarly material on fundamentals of the Science of Engineering supported by assignments in order to:</p> <ul style="list-style-type: none"> <li>• developing innovative &amp; critical thinking</li> <li>• problem solving skills</li> <li>• critical analysis of situations</li> <li>• Skills in using professional software, professional standards/codes of practice</li> <li>• providing the academic route to enable acquiring professional qualifications in Engineering and life-long learning.</li> </ul> <p>ICT supported teaching/learning, peer and problem-based learning, Continuous assessment on individual and group tasks.</p>
<b>2. Practical Knowledge and Application</b>	Problem-based learning, team-based learning, inquiry-based learning, practical classes, laboratory sessions, role play	<ul style="list-style-type: none"> <li>• Application of fundamental knowledge in the lectures to laboratory level applications</li> <li>• Solving industry-oriented problems through assignments/projects individually</li> <li>• Developing team work and solving practical problems through mini-projects</li> <li>• Industry oriented research based individual project over 02 semesters</li> </ul>
<b>3. Communication</b>	Student presentations, role play, debates, dramas	<ul style="list-style-type: none"> <li>• Skills in presenting conceptual &amp; critical thinking</li> <li>• Skills in presenting own individual/team work, findings</li> <li>• Skills in review, analysis and recommendations in written format</li> <li>• Skills in extracting salient information from lectures, speeches &amp; discussions</li> </ul>
<b>4. Teamwork and Leadership</b>	Group projects, industrial training, small group learning; e.g. problem-based learning, games	<ul style="list-style-type: none"> <li>• Team work in group complementing individual capabilities &amp; skills</li> <li>• Skills of peer learning, interpersonal and respecting others opinions</li> <li>• Leadership skills in navigating a group in achieving set goals</li> <li>• Skills in identifying and meeting</li> </ul>

		challenges in industry environment
<b>5. Creativity and Problem Solving</b>	Assignments, projects, small group learning activities; e.g. problem-based learning	<ul style="list-style-type: none"> <li>• Conceptualizing creative, innovative solutions</li> <li>• Skills in solving multi-disciplinary real life problems</li> <li>• Skills in facing unforeseen problems and informed decision making</li> </ul>
<b>6. Managerial and Entrepreneurship</b>	Group projects, industrial training, small group learning; e.g. problem-based learning, games, simulated training, industrial (workplace-based) training	<ul style="list-style-type: none"> <li>• Skills in human resources management</li> <li>• Skills in financial &amp; project management</li> <li>• Developing a positive attitude towards entrepreneurship</li> <li>• Skills in developing a small business</li> <li>• Knowledge in creating and managing Intellectual Property (IP)</li> </ul>
<b>7. Information Usage and Management</b>	Assignments, presentations, projects, case studies	<ul style="list-style-type: none"> <li>• Skills ICT handling and integrating ICT in professional practicing</li> <li>• Skills in information management, ensuring quality &amp; security of information.</li> </ul>
<b>8. Networking and Social Skills</b>	Student presentations, role-play, debates, dramas	<ul style="list-style-type: none"> <li>• Skills in maintaining interpersonal relations</li> <li>• Skills in bringing people at different working levels in harmony at work</li> <li>• Skills in public speaking</li> </ul>
<b>9. Adaptability and Flexibility</b>	Group projects, industrial training, small group learning; e.g. problem-based learning, role plays, portfolios	<ul style="list-style-type: none"> <li>• Skills in getting adapted to changes, vulnerabilities and difficult/different working environments</li> <li>• Skills in flexibility in listening to others and decision making</li> </ul>
<b>10. Attitudes, Values and Professionalism</b>	Group projects, industrial training, small group learning; e.g. problem-based learning, role play, portfolios	<ul style="list-style-type: none"> <li>• Professional ethics, ethos, integrity</li> <li>• Adhering to professional standards</li> <li>• Developing positive mindset within current social dynamics</li> <li>• Developing self-discipline, attributes of social responsibility</li> <li>• Developing attitudes of respect to the context and environment</li> </ul>
<b>11. Vision for Life</b>	Portfolios, reflective practice	<ul style="list-style-type: none"> <li>• Understanding strengths &amp; weakness</li> <li>• Understanding how to leverage passion, competencies in real life situation</li> <li>• Establishing personal goals</li> </ul>
<b>12. Updating Self / Lifelong Learning</b>	Portfolios, reflective practice	<ul style="list-style-type: none"> <li>• Understanding the elements and importance of lifelong learning</li> <li>• Understanding environments of professional bodies</li> <li>• Understanding methods of setting lifelong goals, inspiration, motivation</li> <li>• Judging self-esteem</li> </ul>