



**THE PUNJAB STATE BOARD OF TECHNICAL  
EDUCATION AND INDUSTRIAL TRAINING**

PLOT NO. 1-A, SEC. 36-A, CHANDIGARH PH. : 615385, 622584-85 FAX : 660734

**No. PSBTE&IT/DA/2025/2434**

**Dated: 09-07-2025**

**Circular**

**Subject: Introduction of Elective subject and Training on circular economy in various Diploma level courses.**

As per the approval of competent authority and in continuation to the previous circular issued by the Board vide No. PSBTE&IT/DA/2025/2105 dated 04-06-2025, in which Head of all the Affiliated Polytechnic Institutions of the Board were hereby informed to ensure the following instructions: -

1. Introduction of Open Elective subject on “Circular Economy” in various diploma level courses of Polytechnic Colleges.
2. To encourage the students for 4-6 weeks training preferably related to “Circular Economy” after 4<sup>th</sup> Semester of diploma level courses.

**The detailed contents and scheme of “Circular Economy” for various Diploma level courses are as follows: -**

**A. Course Objective:**

1. To develop individuals who have the necessary theoretical, practical and research knowledge, skill and aptitude in circularity and can get job opportunities by the industry in various sectors both public and private at national and international level.
2. To contrive skilled manpower and entrepreneurship in the field of Circular Economy.
3. To enhance interaction of students with the senior/experienced manpower that has real time knowledge / experience in the technology development, research, innovation, entrepreneurship deployment and circular business models.
4. To acquaint students about the needs of businesses related to circularity and Entrepreneurship in this domain.

**B. Program Outcome**

1. Acquire comprehensive knowledge and understanding the methodologies associated with Circular Economy. Apply knowledge to identify, formulate and analyse new circular business models.

2. Having ability to apply knowledge of 3R's, principles of circularity for development of circular business models.
3. Having ability to design system thinking and life cycle assessment with realistic constraints, including operational and environmental.
4. Acquire skills for developing circular techniques, resources and business models
5. Ability to identify, investigate, understand and analyze problems, apply creativity, to solve practical problems.
6. Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

**C. Course Content: (30 Hours)**

**Module I: Introduction to Circular Economy (05 Hours)**

Linear Economy and its emergence, Economic and Ecological disadvantages of linear economy, Replacing Linear economy by Circular Economy, Development of Concept of Circular Economy, A differential - Linear Vs Circular Economy.

**Module II: Characteristics of Circular Economy (05 Hours)**

Material recovery, Waste Reduction, reducing negative externalities, waste reduction techniques.

**Module III: Circular design, innovation and Assessment (10 Hours)**

Zero waste: Waste Management in context of Circular Economy, Circular design, LCA, Circular Business Models.

**Module IV: Case Studies (10 Hours)**

Business models, Solid Waste Management / Wastewater, Plastics: A case study, EPR: polluters pay principle.

**Learning Resources: Textbook:**

Name of the book	Name of the Author	Publication
The Circular Economy A User's Guide	Walter R Stahel	Routledge; 1st Edition (24 June 2019)
Circular Economy: (Re) Emerging Movement	Shalini Goyal Bhalla	Invincible Publisher
The Circular Economy Handbook: Realizing The Circular Advantage	Peter Lacy, Jessica Long, Wesley Spindler	Palgrave Macmillan UK
Waste to Wealth: The Circular Economy Advantage	Peter Lacy, Jakob Rutqvist	Palgrave Macmillan

**References:**

1. Towards Zero Waste: Circular Economy Boost, Waste to Resources María-Laura Franco-García, Jorge Carlos Carpio-Aguilar, Hans Bressers. Springer International Publishing 2019
2. Strategic Management and the Circular Economy Marcello Tonelli, Nicolo Cristoni, Routledge 2018.
3. Circular Economy: Global Perspective Sadhan Kumar Ghosh, Springer, 2020
4. The Circular Economy: A User's Guide Stahel, Walter R. Routledge 2019
5. An Introduction to Circular Economy Lerwen Liu, Seeram Ramakrishna, Springer Singapore 2021.

**Online References:**

1. <https://www.coursera.org/learn/circular-economy>
2. <https://www.edx.org/course/circular-economy-an-introduction>
3. <https://www.coursera.org/learn/sustainable-digital-innovation>
4. <https://online-learning.harvard.edu/course/introduction-circular-economy?delta=0>
5. <https://www.oecd.org/cfe/regionaldevelopment/Ekins-2019-Circular-Economy-What-Why-How-Where.pdf>
6. <https://ic-ce.com/product/principles-of-circular-economy/>

**Sd/-**  
**Director Academics**  
For Secretary,  
PSBTEIT, Chandigarh