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| Course Code | CP304 | | | |
| Course Title | Process Equipment Design | | | |
| No. of Credits | 3 | | | |
| Pre-requisites | CP201, CP202 | | | |
| Compulsory/Optional | Compulsory | | | |
| Aim(s): To empower the learner with fundamental engineering skills required in chemical engineering equipment design. This module covers design aspects of process equipment with an in-depth analysis of associated design procedures. | | | | |
| Intended Learning Outcomes: On successful completion of the course, the students should be able to; ILO1: Apply fundamental engineering principles and concepts for the design of process equipment. ILO 2: Estimate utility requirements for processes. ILO 3: Use computer software to design process equipment. | | | | |
| Topics | Time Allocation/Hours | | | |
| | L | T | P | A |
| <ul style="list-style-type: none"> Design of process equipment Design of process equipment such as dryers, absorption and stripping columns, binary and multi-component distillation columns, adsorption columns, extractors, crystallizers, cooling towers, mixers, settlers, plate, packed and spray columns, and their operations; Estimation of energy requirements, capacity and efficiency of contacting devices. | 24 | 06 | | 06 |
| <ul style="list-style-type: none"> Computational approaches in design Design of a multi-component distillation column using spreadsheet. Use of computer software for the design of process equipment. | | | 24 | |
| Total equivalent hours | 24 | 06 | 12 | 03 |
| Recommended Texts: <ul style="list-style-type: none"> Sinnott, R. K., Coulson and Richardson's Chemical Engineering Design, (3 Ed), Butterworth-Heinemann, 1999. Harker, J. H., Backhurst, J. R., Richardson, J. F., Coulson and Richardson's Chemical Engineering: Particle Technology and Separation Processes, (5 Ed), Butterworth-Heinemann, 2002. Seader, J. D., Henley, E. J, Roper, D. K, Separation Process Principals: Chemical and Biochemical Operations, (1 Ed), John Wiley & Sons, 2013. | | | | |
| Assessment | Percentage Mark | | | |
| In-course | | | 50 | |
| Tutorials/Assignments/Quizzes/Laboratory work | 25 | | | |
| Mid Semester Examination | 25 | | | |
| End-semester | | | 50 | |