

Schedule for 2310521  
**METABOLIC ENGINEERING (2 credits)**  
 Second semester (2019)

Time: TH 10.00 - 12.00

Room: 519 SCI10

Co-ordinator: Alisa

| Topic  | Hrs. | Date                     | Instructor |
|--|------|--------------------------|------------|
| 1. Review : metabolic pathways<br>1.1 Fuel reactions<br>1.2 Biosynthetic reactions<br>1.3 Energetics   | 6    | Jan 9, 23, 30            | Nuchanat   |
| 2. Concepts of metabolic engineering<br>2.1 Comprehensive models for cellular reactions<br>2.2 Reaction rate and dynamic mass balance<br>2.3 Metabolic engineering of enzymes diverting metabolisms  | 4    | Feb 6, 13                | Kuakarun   |
| 3. Regulation of metabolic pathway and metabolic flux analysis<br>3.1 Regulation of enzyme activity and concentration in transcription/translation levels<br>3.2 Regulation at whole cell level: Global control<br>3.3 Regulation of metabolic network | 4    | Feb 20, 27               | Kuakarun   |
| <b>Mid-term examination:</b>   |      |                          |            |
| 4. Metabolic engineering for extension of product spectrum and novel products  | 8    | March 12, 19, 26 April 2 | Saowarath  |
| 5. Metabolic engineering for enhancement of product yield and productivity   | 4    | April 9, 16              | Alisa      |
| 6. Metabolic engineering for environmental biotechnology<br>6.1 Metabolic engineering for improvement of xenobiotic metabolism<br>6.2 Metabolic engineering for green biotechnology  | 4    | April 23, 30             | Alisa      |
| <b>Final examination:</b>  |      |                          |            |
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