

New technologies	
Code	(not yet available)
Credits (as per ECTS)	10
Attendance time	7 SWS
Course language	German
Duration	1 semester
Rota	annually
Module coordinator	Prof. Dr. Ebert
Assistant professor(s)	Prof. Dr. Ebert, Prof. Dr. Frühwirth, Prof. Dr. Grammel
Incorporation in the degree programs	Industrial biotechnology BSc, mandatory module, 5 th Semester
Required knowledge	<ul style="list-style-type: none"> Content: Recommendation: Selected articles on relevant themes of the current industrial production: Bioprocess technology; Biotechnological plants; Technical microbiology; Project excursions I
Learning outcomes	<p>Students that have successfully completed this module,</p> <ul style="list-style-type: none"> understand current methods and research domains of biotechnology are capable of scientifically analysing current thematic are familiar with current thematic of biotechnology can work with scientific literature (overview and primary articles) written and oral presentation techniques master practical work on current subjects of biotechnological research and development have an extended insight into industrial biotechnology through excursions to companies in the domain of industrial biotechnology have knowledge of industrial processes in biotechnology
Content	<p>The following technical contents are taught in this module:</p> <p>Seminar "New techniques in bioprocesses"</p> <ul style="list-style-type: none"> Selected thematic on new techniques in bioprocesses Research will be conducted on primary articles fitting the thematic This literature will be summed up, analysed and explained in a written and oral presentation A handout will be created with the presentation. <p>Practical course "New bioprocesses practical course"</p> <ul style="list-style-type: none"> Communication of scientific works Experiment planning and smaller projects Practical use of laboratory equipment depending on the application domain Recording experimental data and presentation to a scientific audience <p>Excursion "Project excursions II"</p> <ul style="list-style-type: none"> In-depth insight into current biotechnological processes

	<ul style="list-style-type: none"> • Excursions to various companies in the field of industrial biotechnology • Business areas of the company to be visited
Literature	<p>Seminar "New techniques in bioprocesses"</p> <ul style="list-style-type: none"> • Selected articles on relevant themes around biotechnological processes and practical course <p>Practical course "New bioprocesses practical course"</p> <ul style="list-style-type: none"> • current publications on the respectively attributed thematics • Textbooks of the respectively relevant courses <p>Excursion "Project excursions II"</p> <ul style="list-style-type: none"> • Molekulare Biotechnologie, Konzepte, Methoden und Anwendungen, 2. aktualisierte Auflage, Hrsg.: M. Wink; Wiley-VCH • Bioverfahrensentwicklung, Winfried Storhas, 2. Auflage, Wiley-VCH-Verlag GmbH • Industrial Biotechnology -Sustainable Growth and Economic Success Ed.; W. Soetaert & E. J. Vandamme, Wiley-VCH, 2010 • Enzymes in Industry Production and Applications, Ed.; W. Aehle, Wiley-VCH, 2004 • Company information material (internet)
Forms of teaching and learning	<ul style="list-style-type: none"> • New technologies in bioprocesses (S), 2 SWS, 2 LP • New bioprocesses practical course (P), 3 SWS, 6 LP • Project excursions II (Exc.), 2 SWS, 2 LP
Workload	<p>Seminar "New techniques in bioprocesses" Attendance time: 30 h Individual study: 30 h</p> <p>Practical course "New bioprocesses practical course" Attendance time: 45 h Individual study: 135 h</p> <p>Excursion "Project excursions II" Attendance time: 30 h Individual study: 30 h</p> <p>Total Attendance time: 105 h Individual study: 195 h Total: 300 h</p>
Evaluation method	<p>The examination is a written composition covering the entire module.</p> <p>Handing in this written composition requires students to have successfully completed the prerequisite "New technologies in bioprocesses (S)" (written composition).</p>
Grading	<p>The module grade corresponds to the result of the examination.</p>