New technologies in biomedical research*	
Module code	**mlsTechno-02a**
Abbreviated title	Techno
Module components	Excursions/tutorial, seminars
When	Semester 3
Module coordinator/ Organiser	B. Krause-Kyora, E. Hütten IKMB
Lecturers	**B. Krause-Kyora** (IKMB) and guest lecturers
Contact hours	Excursions/tutorials 3 CH Seminar 1 CH
Workload Total: 100 h	Seminars: Attendance time 15 h, preparation time 15 h Excursions/video production tutorial: Attendance time 45 h, preparation 25 h
Credit points	4 (seminar 1 CP, excursions/tutorials 3 CP), ***NOTE: 1 CP for "Techno" = 25 hrs***
Requirements	-
Expected outcome*	Knowledge: Students - have an understanding of the molecular and technical principles and the areas of application of the biomedical technologies presented - are familiar with the areas of application of the various technologies and know the differences that distinguish one from the other - are aware of possibilities and limitations of defined technologies - are aware of the basic regulation concerning copyrights, intellectual property - are familiar with important principles of visual (science) communication - know which software is available and useful for producing/editing videos via smart phone. Skills: Students can - explain the principles on which the presented technologies are based. -can use software to produce a video for science communication purposes Competencies: Students - can assess the potential new technologies have for future research and their relevance for different applications - can research potential technology applications for their own research (also by searching the literature efficiently) and discuss possibilities with the respective experts - can integrate methods and technologies into their research projects after assessing their benefits - can design and produce a short video for scientific communication purposes (using smart phone technology).
Content	Lecture: High throughput sequencing (3rd gen. sequencing), genome and transcriptome analysis, siRNA-mediated gene silencing, microscopy (e.g. LSM, FRET); mass spectrometry in proteome and metabolome analytics and isotopic research; smart materials/micro- and nanotechnology; incorporation of latest technological developments into module syllabus.

	Seminar: Visits to institutes for instrument demonstrations and presentations
Module evaluation/ exam	**Graded** Multimedia/video presentation
Media used	PPT presentations, handouts, technology demonstrations at the actual instruments
Literature	Current scientific publications; script/manual on video production