

Study programme: Technologies and Materials

	Ph.D. Thesis Topic	Supervisor	Department
1.	<p>Possibilities of Hot Cracks Prediction Abstract: Crystallization cracks are created at the end of crystallization process under temperatures slightly over the solidus temperature. They are created mainly on the grains boundaries where still the thin layer of melt in the form of isolated traps exists. Moreover, in the mentioned temperature range can be also found the area of so-called brittle temperature range (BTR) that features by very low values of ductility which approximate to zero. Prediction of such potential areas makes possible to optimize the welding process for materials sensitive to hot cracks creation. Such sensitivity to hot cracks creation is mainly typical of aluminium alloys, nickel alloys and chosen austenitic steels</p>	doc. Ing. Jaromír Moravec, Ph.D.	KSP
2.	<p>Research of degradation of biopolymers with particulate natural filler Abstract: The aim of dissertation work is research of preparation of a biodegradable composite system, which will be exposed to degradation processes in aerobic and anaerobic conditions. The research will take place on two levels, in terms of degradation of the polymer and composite, and in the level of property research, depending on the exposure time.</p>	prof. Dr. Ing. Petr Lenfeld	KSP
3.	<p>Sustainable development of manufacturing systems Abstract: Production systems productivity increasing at various levels is the traditional objective of industrial engineering. Nowadays, in addition to increasing productivity, the current topic is to carry out this increase in line with the principles of sustainable development. The topic of the thesis is generally concerned with issues of sustainable development. The aim is to propose a methodology for increasing the productivity of production systems with regard to social, economic and environmental impacts.</p>	doc. Ing. Petr Lepšík, Ph.D.	KST