ISE Faculty Areas of Expertise

Methodological Areas crossed with Applications

Fall 2022

References: ABET 2018 SSR; ISE Graduate Program website; New faculty CVs (interest areas); ISE Faculty web pages

Objectives (of analysis): To identify areas of technical and application strength among the faculty, as well as gaps or areas of need.

Heat-mapping
- Crossings presently covered by three or more faculty
- Area not presently covered by faculty expertise/interest.

Areas of Concentration	Subdisciplines	Decision Support Systems	Engineering Education	Energy Systems	Health Systems	Human-in-the-loop Systems	Information Systems	Logistics and service Systems	Production/Manufacturing Systems	Quantitative Finance	Supply Chain Systems	Systems Monitoring	Transportation Systems
Data Analytics methods		K2; K3; K4; L1; P1; S2; X1; Z1;	K3; L1;	P1; S2; K4;	X1; Z1;		K3; K4; P1; S2; X1; Z1;	K2; P1;	K4; L1; S1; X1;	A3; S2;	K3; L1; P1; S1;	P1; X1;	
	High-dimensional data analysis	X1;		K4; L3; R1;	L3; R1; X1;		L3; X1;		K4; R1; X1;	A3;	R1;	K4; R1; X1;	L3; R1;
	Data mining	P1; S2;		P1; S2;			P1; S2;	P1;	S1;	S2;	P1; S1;	P1;	
	Systems Informatics	K4; X1; Z1;		K4; L3; R1;	L3; R1; X1; Z1;		L3; X1; Z1;	A1;	K4; R1; S1; X1;		R1; S1;	K4; R1; X1;	L3; R1;
Engineering Management methods		K3; L1; S2; S3; X1;	A1; B1; K3; L1;	G2; S2; S3;			K3; S2; X1;	A1;	B1; L1; S3; X1;	B1; G2; S2;	A1; G2; K3; L1;	B1; X1;	
Human Factors methods		G1;	M1;		G1; H2;	G1; H2; K1; M1;							G1; H2; K1; M1;
	Biomechanics/Motion Analysis				H2;	H2; K1;							H2; K1;
	Human-Automation/Robot Interaction	G1;	M1;		G1; H2;	G1; H2; K1; M1;							G1; H2; K1; M1;
	Occupational/Systems Safety				H2;	H2; K1;							H2; K1;
Manufacturing methods		K4; L1; T1;		B1; L1;					B1; K4; L1; T1;	B1;	L1; T1;	B1;	
	Facilities layout/design	G1; L1;	B1; L1; M1;		G1;	G1; M1;			B1; L1;	B1;	L1;	B1;	M1;
	Lean production systems	L1;	B1; L1;						B1; L1;	B1;	L1;	B1;	
	Manufacturing Management	L1; T1;	L1;						L1; T1;		L1; T1;		
	Quality Control methods	K3; K4; L1; X1;	K3; L1;	K4;	X1;		K3; K4; X1;		K4; L1; S1; X1;		K3; L1; S1;	K4; X1;	
Operations Research methods		H1; K2; P1; S3; S4; Y1	M1;	G2; L3; P1; S3;	H1; L3; S3;	M1;	L3; P1;	K2; P1; S4; Y1;	S3; Y1;	A3; G2; S4	G2; P1; S4; Y1	P1;	L3; M1; S4
	Continuous Optimization	P1; S4; Y1;		G2; L3; P1;	L3;		L3; P1;	P1; S4; Y1	Y1;	G2; S4	G2; P1; S4; Y1	P1;	L3; S4
	Discrete Optimization	H1; K2; P1; S4; Y1;		G2; P1;	H1;		P1;	K2; P1; S4; Y1;	Y1; Y1;	G2; S4	G2; P1; S4; Y1	P1;	S4
	Integer/Mathematical Programming	K2; S4; Y1;	A2;					K2; S4; Y1;	A2; Y1;	S4	A2; S4; Y1		S4
	Machine learning	K2; K4; P1; S2; X1; Y1;	A1;	K4; L3; P1; S2;	A1; H2; L3; X1;	H2;	A3; K4; L3; P1; S2; X1;	A1; K2; P1; Y1;	X1; Y1;	A3; S2;	A1; P1; Y1;	K4; P1; X1;	H2; L3;
	Network Analysis	K2; P1; S2; S4; Y1;		P1; S2;			A3; P1; S2;	K2; P1; S4; Y1;	Y1;	A3; S2; S4	P1; S4; Y1	P1;	S4
	Queuing Systems	S3;	A1;		S3;		A1;			S3;	A1;		
	Stochastic Optimization	P1; S3; Y1; Z1;		G2; L3; P1; S3;	L3; S3; Z1;		A3; L3; P1; Z1;	P1; Y1;	S3; Y1;	A3; G2;	G2; P1; Y1;	P1;	L3;
Production/Inventory Control Methods		L1; S3; T1; Y1;	A1; L1;	G2; S3;	A1; S3;			A1; L2; Y1;	L1; L2; S1; S3; T1; Y1;	G2;	A1; G2; L1; L2; S1; T1; Y1;		
Simulation Analysis		H1; Z1;	A2;		A2; H1; Z1;		Z1;		A2;		A2;		
	Discrete-event	H1; Z1;	A2;		A2; H1; Z1;		Z1;		A2;		A2;		
	Hybrid	Z1;	A2;		A2; Z1;		Z1;		A2;		A2;		
Supply Chain & Logistics Methods		S4; Y1	A1;	G2;	A1;			A1; L2; S4; Y1;	L2; S1; Y1;		A1; L2; S1; S4; Y1;		S4
Systems Engineering		S2;		S2;		K1;	S2;	L2;	L2;	S2;	L2;		K1;