MINISTÉRIO DA EDUCAÇÃO
UNIVERSIDADE FEDERAL DE OURO PRETO
PRÓ-REITORIA DE GRADUAÇÃO

UFOP

COURSE OF CONTROL AND AUTOMATION ENGINEERING - 2026/2(curriculum 3)

OURO PRETO'S CAMPUS

CODE	MANDATORY DISCIPLINES	PREREQUISITE	SWL/EWL	CWL	CLASSES		SEM
					T	P	
ARQ700	GRAPHIC EXPRESSION I		60/0	72	2	2	1
BCC703	FUNDAMENTALS OF PROGRAMMING		60/0	72	2	2	1
CAT410	INTRODUCTION TO CONTROL AND AUTOMATION ENGINEERING		30/15	36	1	1	1
MTM122	DIFFERENTIAL AND INTEGRAL CALCULUS I		90/0	108	6	0	1
MTM730	ANALYTICAL GEOMETRY AND LINEAR ALGEBRA		60/0	72	4	0	1
BCC704	ALGORITHMS AND DATA STRUCTURES	BCC703	60/0	72	2	2	2
CAT411	INTRODUCTION TO DATA ACQUISITION AND CONTROL	BCC703	30/15	36	1	1	2
FIS106	FUNDAMENTALS OF MECHANICS	MTM122 MTM730	60/0	72	4	0	2
FIS107	FUNDAMENTALS OF THERMODYNAMICS		30/0	36	2	0	2
MTM123	DIFFERENTIAL AND INTEGRAL CALCULUS II	MTM122	60/0	72	4	0	2
QUI022	EXPERIMENTAL GENERAL CHEMISTRY AB		30/0	36	0	2	2
QUI075	GENERAL CHEMISTRY B		30/0	36	2	0	2
AMB111	BASIC ENVIRONMENTAL ENGINEERING M		30/0	36	2	0	3
BCC721	DIGITAL CIRCUITS		60/0	72	4	0	3
BCC760	NUMERICAL CALCULUS	BCC704	60/0	72	2	2	3
FIS108	FUNDAMENTALS OF FLUIDS, OSCILLATIONS AND WAVES	FIS106	30/0	36	2	0	3
MTM124	DIFFERENTIAL AND INTEGRAL CALCULUS III	MTM123	60/0	72	4	0	3
MTM125	INTRODUCTION TO ORDINARY DIFFERENTIAL EQUATIONS	MTM122	60/0	72	4	0	3
BCC705	COMPUTATIONAL SYSTEMS FOR ENGINEERING	BCC721	30/0	36	2	0	4
CAT176	ELECTRIC CIRCUIT ANALYSIS		60/0	72	4	0	4
FIS105	FUNDAMENTALS OF EXPERIMENTAL PHYSICS	FIS106 FIS107 FIS108	30/0	36	0	2	4
FIS109	FUNDAMENTALS OF ELECTROMAGNETISM	MTM123	60/0	72	4	0	4
MEC124	TRANSPORT PHENOMENA	FIS108	60/0	72	2	2	4
MTM146	MATHEMATICS APPLIED TO AUTOMATION AND CONTROL ENGINEERING	MTM125	60/0	72	4	0	4
BCC425	EMBEDDED SYSTEMS	BCC704	60/0	72	2	2	5
CAT412	CONTROL THEORY I	MTM125	60/15	72	3	1	5
CAT413	ELECTROTECHNOLOGY FOR CONTROL AND AUTOMATION	CAT176	60/15	72	2	2	5
CAT414	ELETRONIC CIRCUITS AND DEVICES	CAT176	60/0	72	2	2	5
EST202	STATISTICS AND PROBABILITY		60/0	72	4	0	5
CAT163	INSTRUMENTATION	CAT176	60/0	72	2	2	6
CAT415	ELECTRIC MACHINES	CAT413	60/15	72	2	2	6
CAT416	ELECTRIC DRIVES	CAT413 CAT414	60/15	72	3	1	6
CAT417	CONTROL THEORY II	CAT412	60/15	72	3	1	6
CAT418	LABORATORY OF CONTROL ENGINEERING I	CAT412	60/0	72	2	2	6
BCC740	ARTIFICIAL INTELLIGENCE	BCC703	60/0	72	4	0	7
CAT182	ELEMENTS OF ROBOTICS	CAT418 MTM730	60/0	72	3	1	7
CAT420	INDUSTRIAL COMPUTING	BCC721 CAT416	60/15	72	2	2	7
CAT421	CONTROL THEORY III	CAT417	60/15	72	3	1	7
CAT422	INTEGRATED MANUFACTURING SYSTEMS		30/0	36	1	1	7
CIV049		FIS105	30/0	36	2	0	7
BCC722	REAL-TIME SYSTEM PROGRAMMING	BCC703 BCC704 BCC721	60/0	72	4	0	8
CAT423	INTELLIGENT INSTRUMENTATION	CAT163	60/15	72	3	1	8
CAT424	INDUSTRIALS NETWORKS	CAT420	60/15	72	3	1	8
MEC142	FLUID MECHANICAL DRIVES		60/0	72	2	2	8
CAT425	FINAL COURSE WORK I	2000 hours	30/0	36	1	1	9
DIR250	INTRODUCTION TO LAW AND LEGISLATIONS		30/0	36	2	0	9
MET702	ENGINEERING IN METALLURGY PROCESSES		60/0	72	4	0	9
MIN107	ENGINEERING IN MINING PROCESSES		60/0	72	4	0	9
PRO224	ENGINEERING ECONOMICS		60/0	72	4	0	9

SWL – SEMESTER WORKLOAD IN HOURS; EWL – EXTENSION WORKLOAD IN HOURS; CWL - 50 MINUTE CLASS WORKLOAD; P - PRACTICAL CLASSES; T - THEORY CLASSES; SEM - SEMESTER

CODE	MANDATORY DISCIPLINES	PREREQUISITE	SWL/EWL	CWL	CLASSES		SEM
					T	P	
CAT491	FINAL UNDERGRADUATE PROJECT II	CAT425	30/0	36	2	0	10
PRO215	PLANNING AND PRODUCTION CONTROL I		60/0	72	4	0	10
PRO243	ORGANIZATION AND ADMINISTRATION I		30/0	36	2	0	10

CODE	ELECTIVE DISCIPLINES	PREREQUISITE	SWL/EWL	CWL	CLASSES		SEM
					T	P	
BCC221	OBJECT ORIENTED PROGRAMMING		60/0	72	4	0	
BCC263	COMPUTER ARCHITECTURE		60/0	72	4	0	
BCC264	OPERATIONAL SYSTEMS	MTM730	60/0	72	4	0	
BCC321	DATABASE I	BCC704	60/0	72	4	0	
BCC326	IMAGE PROCESSING		60/0	72	4	0	
BCC362	DISTRIBUTED SYSTEMS		60/0	72	4	0	
BCC406	NEURAL NETWORK AND DEEP LEARNING	BCC704	60/0	72	4	0	
BCC408	DESIGN OF INTEGRATED LOGIC CIRCUITS USING HDL (HARDWARE DESCRIPTION LANGUAGE)	BCC704	60/0	72	1	3	
BCC503	INFORMATICS AND SOCIETY		30/0	36	2	0	
CAT001	SMART CITIES: SUSTAINABILITY, TECHNOLOGY, AND SOCIETY		60/0	72	3	1	
CAT002	POWER ELECTRONICS AND APPLICATIONS		60/0	72	2	2	
CAT178	INTRODUCTION TO INDUSTRY 4.0 TECHNOLOGIES		60/0	72	2	2	
CAT341	MICROCONTROLLERS APPLIED TO CONTROL AND AUTOMATION ENGINEERING	BCC704	60/0	72	2	2	
CAT426	MODELING AND SYSTEMS IDENTIFICATION	MTM125	60/0	72	4	0	
CAT427	SIGNALS AND SYSTEMS	MTM146	60/0	72	4	0	
CAT428	ELECTRICAL INSTALIATIONS		30/15	36	1	1	
CAT429	HISTORY OF AUTOMATIC CONTROL		60/15	72	3	1	
CAT430	CONTROL APPLIED TO THERMAL AND FLUID SYSTEMS		60/0	72	2	2	
CAT432	LIGHTING DESIGN	CAT420	30/15	36	1	1	
CAT433	DISCRETE-EVENT SYSTEMS		60/0	72	2	2	
CAT434	ADVANCED TOPICS IN INDUSTIAL COMPUTING	CAT163	30/0	36	0	2	
CAT435	CONTROL AND AUTOMATION LABORATORY	BCC425	60/0	72	0	4	
CAT436	RENEWABLE AND SUSTAINABLE ENERGY	BCC721	30/0	36	2	0	
CAT437	SENSORS AND INSTRUMENTATION FOR SMART CITIES		30/0	36	2	0	
CAT438	RENEWABLE ENERGY CONVERSION AND CONTROL		60/0	72	4	0	
CAT601	AUTOMATION DESIGN	BCC704 BCC740	60/0	72	2	2	
CSO010	SOCIOLOGY OF KNOWLEDGE		60/0	72	4	0	
FIL652	ETHICS		60/0	72	3	1	
LET041	INTRODUCTION TO THE BRAZILIAN SIGN LANGUAGE		60/0	72	2	2	
MEC104	MACHINES ELEMENTS I		60/0	72	4	0	
MEC108	MACHINING PROCESS		60/0	72	2	2	
PRO302	ENTREPRENEURIAL ACTIVITIES		60/0	72	1	3	
PRO706	OPERATIONAL RESEARCH I		60/0	72	2	2	
PRO725	INFORMATION ENGINEERING	BCC721	60/0	72	3	1	

CODE	ACTIVITIES	PREREQUISITE	CHARACTER	SWL	SEM
ATV023		1500	MANDATORY	160	10
ATV019			MANDATORY	80	
ATV100			MANDATORY	105	
ATV200			MANDATORY	165	

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Required Courses Load		Work Load
Mandatory Disciplines		2700
Elective Disciplines		180
Optative Disciplines		0
Facultative Disciplines		0
Activities		510
Extensions		360
	Total	3390

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