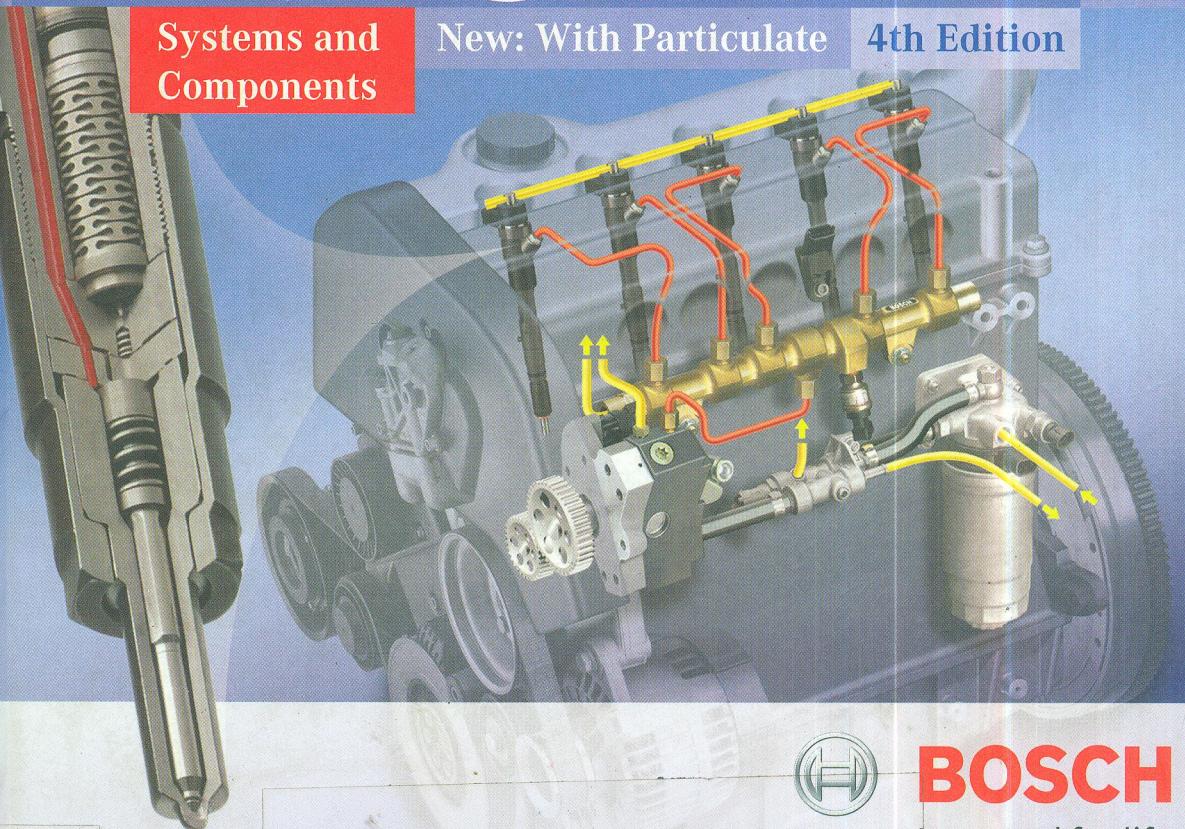


Robert Bosch GmbH

Diesel-Engine Management

Systems and Components

New: With Particulate 4th Edition



BOSCH

Invented for life



621.436
B742

Robert Bosch GmbH

Diesel-Engine Management

4th

Edition,
completely revised and extended

THƯ VIỆN TRƯỜNG ĐHSPKT

SKN

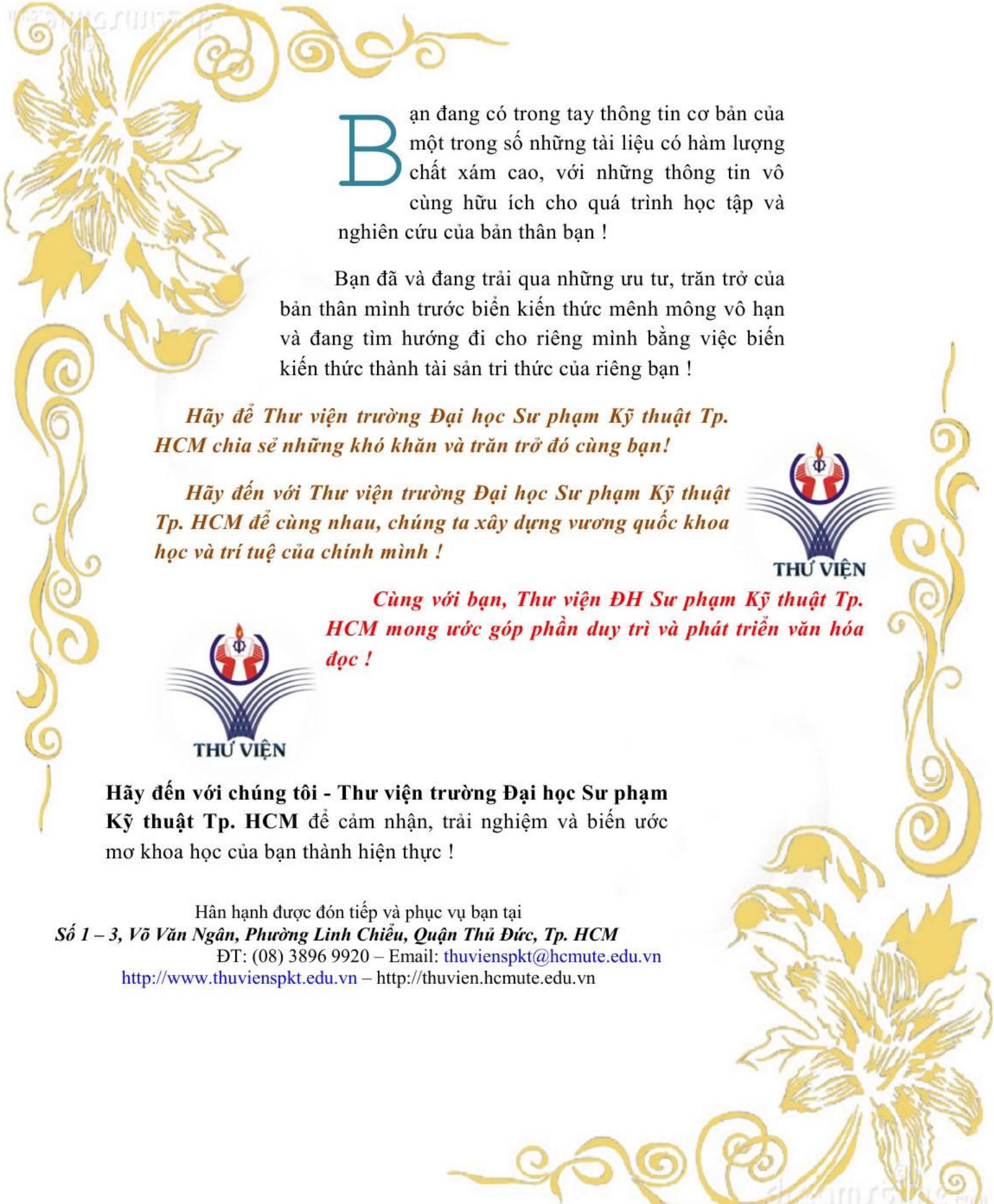
004374

 Contents

10 History of the diesel engine	82 Fuel supply system to the low-pressure stage	131 Types of governor/control system
11 Rudolf Diesel	82 Overview	136 Overview of governor types
12 Mixture formation in the first diesel engines	84 Fuel filter	142 Timing device
13 Use of the first vehicle diesel engines	86 Fuel-supply pump	144 Electric actuator mechanisms
16 Bosch diesel fuel injection	90 Miscellaneous components	
20 Areas of use for diesel engines	92 Supplementary valves for in-line fuel-injection pumps	
20 Suitability criteria	94 Overview of in-line fuel-injection pump systems	146 Control-sleeve in-line fuel-injection pumps
20 Applications	94 Areas of application	147 Design and method of operation
23 Engine characteristic data	94 Types	150 Overview of distributor fuel-injection pump systems
24 Basic principles of the diesel engine	95 Design	150 Areas of application
24 Method of operation	95 Control	150 Designs
27 Torque and power output	98 Presupply pumps for in-line fuel-injection pumps	152 Helix and port-controlled systems
28 Engine efficiency	98 Applications	154 Solenoid-valve-controlled systems
31 Operating states	99 Design and method of operation	
34 Operating conditions	101 Manual priming pumps	158 Helix and port-controlled distributor injection pumps
37 Fuel-injection system	101 Preliminary filter	159 Applications and installation
38 Combustion chambers	101 Gravity-feed fuel-tank system	161 Design
42 Fuels	102 Type PE standard in-line fuel-injection pumps	164 Low-pressure stage
42 Diesel fuel	103 Fitting and drive system	167 High-pressure pump with fuel distributor
48 Alternative fuels	103 Design and method of operation	
50 Cylinder-charge control systems	112 Design variations	176 Auxiliary control modules for distributor injection pumps
50 Overview	122 Type PE in-line fuel-injection pumps for alternative fuels	176 Overview
51 Turbochargers and superchargers	123 Operating in-line fuel-injection pumps	178 Governors
60 Swirl flaps	124 Governors and control systems for in-line fuel-injection pumps	185 Timing device
61 Intake air filters	124 Open- and closed-loop control	188 Mechanical torque-control modules
64 Basic principles of diesel fuel-injection	126 Action of the governor/control system	201 Load switch
64 Mixture distribution	126 Definitions	202 Delivery-signal sensor
66 Fuel-injection parameters	127 Proportional response of the governor	203 Shutoff devices
75 Nozzle and nozzle holder designs	128 Purpose of the governor/control system	204 Electronic Diesel Control
76 Overview of diesel fuel-injection systems		207 Diesel-engine immobilizers
76 Designs		
		208 Solenoid-valve-controlled distributor injection pumps
		208 Areas of application
		208 Designs
		210 Fitting and drive system

212 Design and method of operation	264 Method of operation	334 Exhaust-gas treatment
214 Low-pressure stage	268 Common-rail system for passenger cars	335 NO _x storage catalyst
216 High-pressure stage of the axial-piston distributor injection pump	273 Common-rail system for commercial vehicles	338 Selective catalytic reduction of nitrogen oxides
220 High-pressure stage of the radial-piston distributor injection pump	276 High-pressure components of common-rail system	344 Diesel Particulate Filter (DPF)
224 Delivery valves	276 Overview	352 Diesel oxidation catalyst
226 High-pressure solenoid valve	278 Injector	354 Electronic Diesel Control (EDC)
228 Injection timing adjustment	288 High-pressure pumps	354 System overview
234 Electronic control unit	294 Fuel rail (high-pressure accumulator)	357 In-line fuel-injection pumps
235 Summary	296 Pressure-control valve	358 Helix-and-port-controlled axial-piston distributor pumps
236 Overview of discrete cylinder systems	297 Pressure-relief valve	359 Solenoid-valve-controlled axial-piston and radial-piston distributor pumps
236 Single-plunger fuel-injection pumps PF	298 Injection nozzles	360 Unit Injector System (UIS) for passenger cars
238 Unit Injector System (UIS) and Unit Pump System (UPS)	300 Pintle nozzles	361 Unit Injector System (UIS) and Unit Pump System (UPS) for commercial vehicles
240 System diagram of UIS for cars	302 Hole-type nozzles	362 Common Rail System (CRS) for passenger cars
242 System diagram of UIS/UPS for commercial vehicles	306 Future development of the nozzle	363 Common Rail System (CRS) for commercial vehicles
244 Single-plunger fuel-injection pumps PF	308 Nozzle holders	364 Data processing
244 Design and method of operation	308 Overview	366 Fuel-injection control
246 Sizes	310 Standard nozzle holders	377 Further special adaptations
248 Unit Injector System (UIS)	311 Stepped nozzle holders	378 Lambda closed-loop control for passenger-car diesel engines
248 Installation and drive	312 Two-spring nozzle holders	383 Torque-controlled EDC systems
249 Design and construction	313 Nozzle holders with needle-motion sensors	386 Control and triggering of the remaining actuators
252 Method of operation	314 High-pressure lines	387 Substitute functions
256 High-pressure solenoid valve	314 High-pressure connection fittings	388 Data exchange with other systems
258 Unit Pump System (UPS)	315 High-pressure delivery lines	389 Serial data transmission (CAN)
258 Installation and drive	318 Start-assist systems	394 Application-related adaptation of car engines
258 Design and construction	318 Overview	398 Application-related adaptation of commercial-vehicle engines
260 Current-controlled rate shaping (CCRS)	319 Preheating systems	403 Calibration tools
262 Overview of common-rail systems	324 Minimizing emissions inside of the engine	
262 Areas of application	325 Combustion process	
263 Design	327 Other impacts on pollutant emissions	
	329 Development of homogeneous combustion process	
	330 Exhaust-gas recirculation	
	333 Positive crankcase ventilation	

406 Electronic Control Unit (ECU)	462 Exhaust-gas emissions	41 Fuel consumption in everyday practice
406 Operating conditions	462 Overview	46 Fuel parameters
406 Design and construction	462 Major components	81 History of diesel fuel injection
406 Data processing	464 Combustion byproducts	91 Diesel aircraft engines of the 1920s and 30s
412 Sensors	466 Emission-control legislation	109 History of in-line fuel-injection pumps
412 Automotive applications	466 Overview	113 1978 diesel speed records
413 Temperature sensors	468 CARB legislation (passenger cars/LDT)	125 History of the governor
414 Micromechanical pressure sensors	472 EPA legislation (passenger cars/LDT)	172 Off-road applications
417 High-pressure sensors	474 EU legislation (passenger cars/LDT)	175 Diesel records in 1972
418 Inductive engine-speed sensors	476 Japanese legislation (passenger cars/LDT)	177 History of the mechanically controlled distributor injection pump from Bosch
419 Rotational-speed (rpm) sensors and incremental angle-of-rotation sensors	477 U.S. legislation (heavy-duty trucks)	206 Measured variables on diesel engines
420 Hall-effect phase sensors	478 EU legislation (heavy-duty trucks)	209 Family tree of Bosch electronically controlled distributor injection pumps
422 Accelerator-pedal sensors	480 Japanese legislation (heavy-duty trucks)	211 1998 Diesel Records
424 Hot-film air-mass meter HFM5	481 U.S. test cycles for passenger cars and LDTs	225 Micromechanics
426 LSU4 planar broad-band Lambda oxygen sensors	483 European test cycle for passenger cars and LDTs	261 The history and the future of the Unit Injector (UI)
428 Half-differential short-circuiting-ring sensors	483 Japanese test cycle for passenger cars and LDTs	267 Diesel boom in Europe
429 Fuel-level sensor	484 Test cycles for heavy-duty trucks	272 Overview of diesel fuel-injection systems
430 Fault diagnostics	486 Exhaust-gas measuring techniques	277 The piezoelectric effect
430 Monitoring during vehicle operation (on-board diagnosis)	486 Exhaust-gas test for type approval	295 Cleanliness requirements
433 On-board diagnosis system for passenger cars and light-duty trucks	489 Exhaust-gas measuring devices	299 Dimensions of diesel fuel-injection technology
440 On-board diagnosis system for heavy-duty trucks	491 Exhaust-gas measurement in engine development	307 High-precision technology
442 Service technology	493 Emissions testing (opacity measurement)	317 Cavitation in the high-pressure system
442 Workshop business	494 Index of technical terms	356 Where does the word "electronics" come from?
446 Diagnostics in the workshop	494 Technical terms	373 Injector delivery compensation
448 Testing equipment	499 Acronyms	377 Racing trucks
450 Fuel-injection pump test benches	Editorial boxes	382 Closed-loop and open-loop control
452 Testing in-line fuel-injection pumps	37 Size of injection	402 Engine test bench
456 Testing helix- and port-controlled distributor injection pumps	40 M System	411 Very severe demands are made on the ECU
460 Nozzle tests		441 Global service
		465 Greenhouse effect
		480 Ozone and smog



Bạn đang có trong tay thông tin cơ bản của một trong số những tài liệu có hàm lượng chất xám cao, với những thông tin vô cùng hữu ích cho quá trình học tập và nghiên cứu của bản thân bạn !

Bạn đã và đang trải qua những ưu tư, trăn trở của bản thân mình trước biến kiến thức mênh mông vô hạn và đang tìm hướng đi cho riêng mình bằng việc biến kiến thức thành tài sản tri thức của riêng bạn !

Hãy đến Thư viện trường Đại học Sư phạm Kỹ thuật Tp. HCM chia sẻ những khó khăn và trăn trở đó cùng bạn!

Hãy đến với Thư viện trường Đại học Sư phạm Kỹ thuật Tp. HCM để cùng nhau, chúng ta xây dựng vương quốc khoa học và trí tuệ của chính mình !



Cùng với bạn, Thư viện ĐH Sư phạm Kỹ thuật Tp. HCM mong ước góp phần duy trì và phát triển văn hóa đọc !



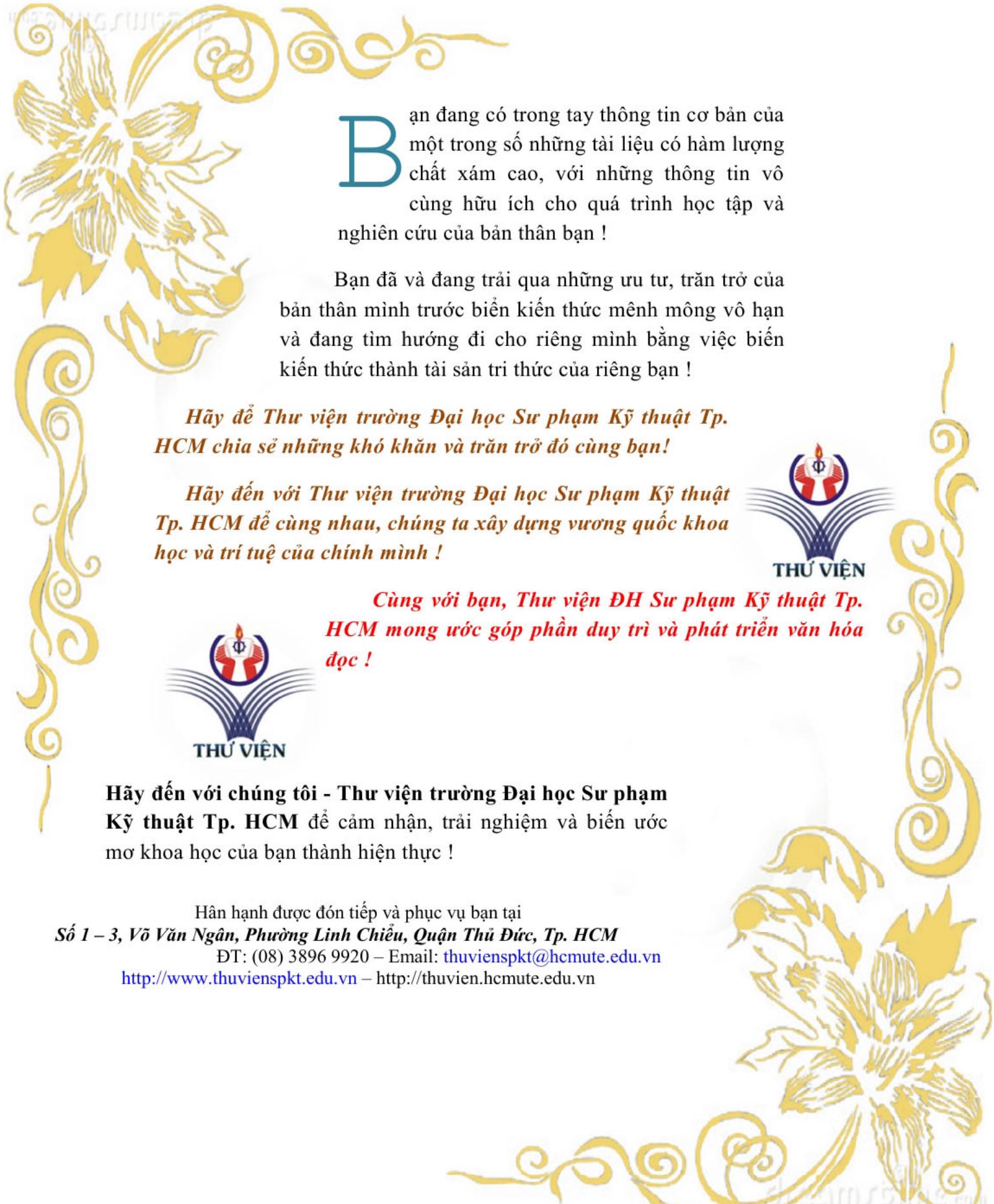
Hãy đến với chúng tôi - Thư viện trường Đại học Sư phạm Kỹ thuật Tp. HCM để cảm nhận, trải nghiệm và biến ước mơ khoa học của bạn thành hiện thực !

Hân hạnh được đón tiếp và phục vụ bạn tại
Số 1 – 3, Võ Văn Ngân, Phường Linh Chiểu, Quận Thủ Đức, Tp. HCM
ĐT: (08) 3896 9920 – Email: thuvienspkt@hcmute.edu.vn
<http://www.thuvienspkt.edu.vn> – <http://thuvien.hcmute.edu.vn>



Thông tin tài trợ!





Bạn đang có trong tay thông tin cơ bản của một trong số những tài liệu có hàm lượng chất xám cao, với những thông tin vô cùng hữu ích cho quá trình học tập và nghiên cứu của bản thân bạn !

Bạn đã và đang trải qua những ưu tư, trăn trở của bản thân mình trước biến kiến thức mênh mông vô hạn và đang tìm hướng đi cho riêng mình bằng việc biến kiến thức thành tài sản tri thức của riêng bạn !

Hãy đến Thư viện trường Đại học Sư phạm Kỹ thuật Tp. HCM chia sẻ những khó khăn và trăn trở đó cùng bạn!

Hãy đến với Thư viện trường Đại học Sư phạm Kỹ thuật Tp. HCM để cùng nhau, chúng ta xây dựng vương quốc khoa học và trí tuệ của chính mình !



Cùng với bạn, Thư viện ĐH Sư phạm Kỹ thuật Tp. HCM mong ước góp phần duy trì và phát triển văn hóa đọc !



Hãy đến với chúng tôi - Thư viện trường Đại học Sư phạm Kỹ thuật Tp. HCM để cảm nhận, trải nghiệm và biến ước mơ khoa học của bạn thành hiện thực !

Hân hạnh được đón tiếp và phục vụ bạn tại
Số 1 – 3, Võ Văn Ngân, Phường Linh Chiểu, Quận Thủ Đức, Tp. HCM
ĐT: (08) 3896 9920 – Email: thuvienspkt@hcmute.edu.vn
<http://www.thuvienspkt.edu.vn> – <http://thuvien.hcmute.edu.vn>



Thông tin tài trợ!

