



July 15, 2019

James D. Fielder, Jr., Ph.D.
Secretary of Higher Education
Maryland Higher Education Commission
6 North Liberty Street
Baltimore, MD 21201

Dear Dr. Fielder:

Attached, please find Chesapeake College's Academic Program Proposal to offer a stand-alone Certificate in MIG and TIG Welding Fabrication. The new certificate aligns with statewide goals and national trends promoting workforce development while responding to local manufacturing demands for skilled welders. Coursework combines an accelerated timeline with appropriate "workplace excellence" skill development to help ensure completers retain their jobs.

Chesapeake College's welding program, one of our longest and most successful in the trades, employs industry-certified faculty and enjoys the support of local employers, who have directly informed the college's development of industry-standard content and curriculum. The college is pleased to offer this updated program with existing faculty and institutional resources. A check in the amount of \$850 will be mailed by the end of the week.

If you have any questions or require additional information, please contact Marci Leach, Director of Program Development, at mleach@chesapeake.edu or 410-827-5824.

Sincerely,

David Harper, Jr.
Vice President for Workforce and Academic Programs



Cover Sheet for In-State Institutions New Program or Substantial Modification to Existing Program

Institution Submitting Proposal	Chesapeake College
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Each action below requires a separate proposal and cover sheet.

- | | |
|--------------------------------------------------------------|-------------------------------------------------------------------------|
| <input type="radio"/> New Academic Program | <input type="radio"/> Substantial Change to a Degree Program |
| <input type="radio"/> New Area of Concentration | <input type="radio"/> Substantial Change to an Area of Concentration |
| <input type="radio"/> New Degree Level Approval | <input type="radio"/> Substantial Change to a Certificate Program |
| <input checked="" type="radio"/> New Stand-Alone Certificate | <input type="radio"/> Cooperative Degree Program |
| <input type="radio"/> Off Campus Program | <input type="radio"/> Offer Program at Regional Higher Education Center |

Payment <input checked="" type="radio"/> Yes	Payment <input type="radio"/> R*STARS	Payment <input type="radio"/> \$850.00	Date
Submitted: <input type="radio"/> No	Type: <input checked="" type="radio"/> Check	Amount:	Submitted:

Department Proposing Program	Skilled Trades		
Degree Level and Degree Type	Certificate		
Title of Proposed Program	MIG & TIG Welding/Fabrication Certificate		
Total Number of Credits	22		
Suggested Codes	HEGIS: 5308.00	CIP:	
Program Modality	<input checked="" type="radio"/> On-campus	<input type="radio"/> Distance Education (<i>fully online</i>)	
Program Resources	<input checked="" type="radio"/> Using Existing Resources	<input type="radio"/> Requiring New Resources	
Projected Implementation Date	<input checked="" type="radio"/> Fall	<input type="radio"/> Spring	<input type="radio"/> Summer
Provide Link to Most Recent Academic Catalog	URL: https://www.chesapeake.edu/welding		

Preferred Contact for this Proposal	Name:	Marci Leach
	Title:	Director of Program Development
	Phone:	(410) 827-5824
	Email:	mleach@chesapeake.edu

President/Chief Executive	Type Name:	DAVID A. HARPER, JR.	
	Signature:		Date: 7/8/19
	Date of Approval/Endorsement by Governing Board:		

Revised 3/2019

MARYLAND HIGHER EDUCATION COMMISSION

New Stand-Alone Certificate Program

MIG & TIG Welding/Fabrication

A. Centrality to institutional mission statement and planning priorities:

Chesapeake College's core commitment is to prepare students from diverse communities to excel in further education and employment in our region and beyond. Our Career and Technology Education (CTE) programs and services are designed with our regional economic development and sustainability in mind. In addition, the college is committed to the support of workforce development by providing the courses and training needed to build a skilled labor force.

The Chesapeake College 2019-2024 Strategic Plan explicitly calls for strengthening the regional economy notably by, “providing meaningful face –to–face and online educational programming and support that anticipates and meets the needs and expectations of our students and our region”¹. In our region, and throughout the state of Maryland, the demand for welders has steadily increased among all industries requiring this type of skilled worker. In addition, the Strategic Plan shares the goal to “serve as the connector for regional development and innovation on the Eastern Shore.”² The proposed MIG & TIG Welding/Fabrication certificate was created through the collaboration of our community partners and local employers. The curriculum infuses core welding content with the appropriate level of workplace communication and essential skills necessary for success in the workplace.

The purpose of the MIG & TIG Welding/Fabrication certificate at Chesapeake College is to prepare students to be an integral part of the regional economy by providing highly skilled workers to support the increasing regional demand. The revised program replaces an existing welding format with a new accelerated pathway to move students through the learning process and into the workforce at a faster pace. The program will be staffed with existing administrative support along with new and existing faculty members.

B. Critical and compelling regional or Statewide need as identified in the State Plan:

The 2017-2021 Maryland State Plan for Post-Secondary Education has identified several key strategies. The MIG & TIG Welding/Fabrication certificate program supports the following strategies:

¹ “The Peake Plan” (2019-2024) Chesapeake College Strategic Plan.

² “The Peake Plan” (2019-2024) Chesapeake College Strategic Plan.

1. **Strategy 1:** *“Continue to improve college readiness among K-12 students, particularly high school students”*. Chesapeake College works closely with the high schools within the five-county service region to provide dual enrollment for students interested in the welding profession. Representatives from the skilled trades division meet students within their school, on the college campus and during college hosted events to discuss the program. This early exposure to a core skilled trades related career paths, and the conversations about entry requirements, allows students to better understand the necessity of maintaining a strong GPA, among other essential school performance measures. The early opportunity for college training allows students to complete the necessary program pre-requisites during the high school years, saving time and money. This, along with the high school level assessments, allows students to achieve college credits, further preparing them for college.
2. **Strategy 5:** *“Ensure that statutes, regulations, policies, and practices that support students and encourage their success are designed to serve the respective needs of both traditional and non-traditional students”*. The MIG & TIG Welding/Fabrication certificate program is designed to allow the students to move through as a cohort in a scaffolded format. The course format is accelerated to provide the fastest route for immediate employment. In addition, students with prior welding knowledge have the opportunity for course exemption based on industry-based experience and competency based assessments.
3. **Strategy 7:** *“Enhance career advising and planning services and integrate them explicitly into academic advising and planning”*. Research has indicated that career advising is just as critical to student success as academic advising. Because of this, Chesapeake College has invested significant internal resources to improve the overall student advising experience. Career Coach is an innovative program designed to help students align their career vision with an educational pathway. Through this interactive software and subsequent advising meetings, students assess their strengths and interests and explore the various careers that others, with their similar preferences, have participated in. The site includes salary data, required educational level and the career pathways within the college. In addition, college advisors provide regular information sessions about training and career opportunities in the skilled trades pathways.
4. **Strategy 8:** *“Develop new partnerships between colleges and businesses to support workforce development and improve workforce readiness”*. Chesapeake College’s strategic mission includes serving as the connector for regional development and innovation. Specifically, our charge calls to “strengthen existing partnerships within the region”³. The College has re-engaged the Partner Advisory Committees (PAC) to include members with knowledge and expertise in the in skilled trades and welding industries. The

³ “The Peake Plan” (2019-2024) Chesapeake College Strategic Plan.

PAC groups advise program directors about industry trends, relevant certifications, and pertinent curriculum updates in an attempt to align programming with regional workforce and economic development needs. In addition, the PAC groups advocate for the program and help connect students to community resources.

C. Quantifiable & reliable evidence and documentation of market supply & demand in the region and State:

The proposed MIG & TIG Welding/Fabrication certificate enhances Chesapeake College’s support for the growth of skilled trades within the region. In addition, the degree pathway supports the 2017 Governor’s Workforce Development Board initiative to continue to build relationships between businesses, schools and the workforce.⁴

Multiple industries require workers trained in welding, each of these areas reflect growth in the region.



Occupation employment data are estimated via industry employment data and the industry/occupation job. Industry employment data are derived from the Quarterly Census of Employment and Wages, provided by the Bureau of Labor Statistics and currently updated through 2016Q3, imputed where necessary with preliminary estimates updated to 2016Q1.

Top Industry Distribution for Welders, Cutters, Solderers, and Brazers (51-4121) in Upper Shore - 5 Counties

NAICS Code	Industry Title	Current Occupation Employment	10-Year Sep Demand	10-Year Growth Demand	10-Year Total Demand
3329	Other Fabricated Metal Product Manufacturing	22	23	-1	21
3323	Architectural and Structural Metals Manufacturing	15	16	0	16
3334	Ventilation, Heating, Air-Conditioning, and Commercial Refrigeration Equipment Manufacturing	14	14	-2	12

⁴ <http://www.gwdb.maryland.gov/lib/pdf/annualreport2017.pdf>

Top Industry Distribution for Welders, Cutters, Solderers, and Brazers (51-4121) in Upper Shore - 5 Counties

NAICS Code	Industry Title	Current Occupation Employment	10-Year Sep Demand	10-Year Growth Demand	10-Year Total Demand
2381	Foundation, Structure, and Building Exterior Contractors	13	14	1	15
3326	Spring and Wire Product Manufacturing	12	12	-2	10
8113	Commercial and Industrial Machinery and Equipment (except Automotive and Electronic) Repair and Maintenance	10	11	1	12
2379	Other Heavy and Civil Engineering Construction	7	7	0	7
3327	Machine Shops; Turned Product; and Screw, Nut, and Bolt Manufacturing	5	5	0	5
2371	Utility System Construction	4	5	1	6
2382	Building Equipment Contractors	3	4	0	4
3366	Ship and Boat Building	3	3	0	3
3399	Other Miscellaneous Manufacturing	3	3	0	3
3339	Other General Purpose Machinery Manufacturing	3	3	0	3
4238	Machinery, Equipment, and Supplies Merchant Wholesalers	3	3	0	3
3362	Motor Vehicle Body and Trailer Manufacturing	2	3	0	3
5613	Employment Services	2	2	0	2
2389	Other Specialty Trade Contractors	2	2	0	2
4233	Lumber and Other Construction Materials Merchant Wholesalers	2	2	0	2
3273	Cement and Concrete Product Manufacturing	2	2	0	1
3331	Agriculture, Construction, and Mining Machinery Manufacturing	1	2	0	2
-All Others-		20	21	0	21

Maryland Long Term Occupational Projections (2016 - 2026)

Occupation (keyword search)

weld ×

Number of Openings

-736

211,284

Percent Change

-18.89%

75.26%



Occupation	2016	2026	Change	Pct Change
Welders, Cutters, Solderers, and Brazers	2,404	2,546	142	5.91%
Welding, Soldering, and Brazing Machine Setters, Operators, and Tenders	265	274	9	3.40%

Maryland Long Term Occupational Projections (2016 - 2026)

Occupation (keyword search)

fabricator ×

Number of Openings		Percent Change	
-736	211,284	-18.89%	75.26%
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

Occupation	\$	2016	2026	Change	Pct Change
Assemblers and Fabricators		11,033	11,883	650	5.89%
Assemblers and Fabricators, All Other		2,510	2,672	162	6.45%
Fiberglass Laminators and Fabricators		57	60	3	5.26%
Structural Metal Fabricators and Fitters		636	657	21	3.30%

D. Reasonableness of program duplication:

Welding programs are currently offered through other colleges and organizations within the state. Chesapeake College is well suited to be the primary provider to students within our five county service region.

E. Relevance to high-demand programs at Historically Black Institutions (HBIs)

The MIG & TIG Welding/Fabrication Certificate program has no impact, negatively or positively, on programs at HBIs.

F. Relevance to the identity of Historically Black Institutions (HBIs)

The MIG & TIG Welding/Fabrication Certificate program has no impact, negatively or positively, on programs at HBIs.

G. Adequacy of Curriculum Design, Program Modality, and Related Learning Outcomes (as outlined in COMAR 13B.02.03.10):

The MIG & TIG Welding/Fabrication Certificate program is designed to prepare students for immediate employment – by first laying a strong foundation in the basics of the welding, cutting, and fabricating process, then allowing the student to specialize in one of two tracks, based on their area of choice. It is also possible for students to complete both tracks. Fabrication techniques and the ability to fabricate assemblies from construction

drawings is emphasized in both certificate tracks. The programs are aligned with the American Welding Society (AWS) standards for entry level and advanced welder certifications.

The accelerated training is offered in a cohort-style program that can be completed in one year. Courses are held in the evenings and online to allow students to maintain full-time employment throughout the program. The core curriculum and course framework follows the American Welding Society guidelines for entry level and advanced welder certifications. and was developed in accordance with Chesapeake College’s Curriculum Guide⁵.

Prefix	Number	Course Name	Credits	Semester
WEL	108	Fundamentals of Welding	3	SUMMER
WEL	109 +	Welding and Cutting Processes	3	FALL
CPL	105	Career Planning and Preparation	1	FALL
WEL	152 +	Metal Fabrication	3	FALL
WEL	201 +	Intermediate MIG & TIG Welding	3	SPRING
WEL	211	Advanced MIG & TIG Welding	3	SPRING
ENG	100	Communicating on the Job	3	SPRING
WEL	252 +	Metal Fabrication II	3	SUMMER
Minimum Required Credits:			22	

The MIG & TIG Welding/Fabrication Certificate program will be assessed in accordance with Chesapeake College’s program review process as outlined in the College Curriculum Guide.⁶ Core programmatic goals include:

1. Demonstrate proper inspection, setup, and operation of equipment used for each welding and thermal cutting process used.
2. Explain physical characteristics, mechanical properties, composition, and classification of common ferrous and nonferrous metals.
3. Perform cutting operations using oxyfuel gas cutting (OFC) and plasma arc cutting (PAC).
4. Demonstrate proficiency in GMAW, GTAW, SMAW, and FCAW processes.
5. Operate GMAW and GTAW equipment to make fillet, groove, and pipe welds in all positions on carbon steel, stainless steel, and/or aluminum.

⁵ Chesapeake College. *Chesapeake College Curriculum Development Guide*. 2016.

⁶ Chesapeake College. *Chesapeake College Curriculum Development Guide*. 2016.

6.Utilize practical math applications in arithmetic, trigonometry, and geometry during fabrication processes.

7.Interpret welding symbols and detail drawings to produce fabricated assemblies.

8.Utilize effective writing and speaking skills to communicate successfully in work situations.

The MIG & TIG Welding/Fabrication Certificate program is fully supported through the college's marketing initiatives; all correlating materials accurately and concisely represent the program⁷.

H. Adequacy of articulation

The MIG & TIG Welding/Fabrication Certificate program is not designed for transfer; it is created to provide the essential skills for immediate employment.

I. Adequacy of faculty resources (as outlined in COMAR 13B.02.03.11).

Program Director: Thomas Ellis is a former teacher for the Construction Design and Management Pathway for Queen Anne's County and Anne Arundel County school systems where he created curriculum utilizing differentiated instruction. He has over 20 years of experience in the construction field. Mr. Ellis holds a Master of Science in Curriculum and Instruction with Concentration in Leadership, a Bachelor of Science in Finance, and a Certificate in Construction Technology with a Concentration in Carpentry.

Instructor: Kevin Blankenship is a NCCER Certified Core and Welding Instructor and holds certificates in pipe-fitting and pipe-welding. He is a member of the American Welding Society and has studied ornamental blacksmithing for over 18 years.

Instructor: Frank Weishaar completed the Boilermakers National Apprenticeship Program and has over 15 years of industrial experience in the welding field. He also worked as an instructor for the Queen Anne's County High School welding program for two years. In his professional career he has served as a quality inspector, supervisor, pipe welder, structural welder, and welding fabricator. Mr. Weishaar currently holds an AWS Certified Welding Inspector certificate and an OSHA 30 Safety credential.

J. Adequacy of library resources (as outlined in COMAR 13B.02.03.12).

The library of Chesapeake College provides students, faculty and community members with various resources to meet their informational and research needs and supports the programs that make up the current curriculum offerings. The library has a collection of 30,000 print titles, more than 300,000 e-books, 1,500 audiovisual materials, 50 print serial subscriptions, and over 100,000 electronic print serials. The library subscribes to over 50 databases providing full-text material, bibliographic citations, images, audio, and films.

⁷ <https://www.chesapeake.edu/welding>

The library is a member of the Upper Eastern Shore Library Consortium which provides for resource sharing among the college and local public libraries. This program allows our patrons to borrow from public and academic libraries throughout the State of Maryland. Information about the college's library resources is found at <http://info.chesapeake.edu/lrc/library>. The President has affirmed that the program can be implemented within existing library resources.

K. Adequacy of physical facilities, infrastructure and instructional equipment (as outlined in COMAR 13B.02.03.13)

The welding facility at Chesapeake College is composed of a welding lab, fabrication lab, and a dedicated welding classroom.

The welding lab contains 14 booths, each equipped with welding machines that allow students to perform the four main welding processes – stick (SMAW), flux-cored (FCAW), MIG (GMAW), and TIG (GTAW). The students utilize these booths for individualized practice in welding various types/forms of metal in all physical positions.

The fabrication lab is a newly established space meant to accommodate the new focus on metal fabrication skills within the program. The lab layout simulates that of a typical welding shop which one would find in the industry. There are large, heavy duty workbenches where students can perform their work on large or small-scale assemblies. There are mobile thermal cutting and welding machines that can be positioned and utilized by the students as needed. Additionally, the fabrication lab has stationary machines that assist in cutting and shaping metal that can also be utilized by the students.

The classroom is designed to support a variety of learning styles and contains all the necessary instructional features conducive for the delivery of content in several formats. The room opens to both the welding lab and the fabrication lab.

L. Adequacy of financial resources with documentation (as outlined in COMAR 13B.02.03.14)

TABLE 1: PROGRAM RESOURCES AND NARRATIVE RATIONALE

1. **Reallocated Funds**: This program will utilize existing faculty resources and administrative staff.
2. **Tuition and Fee Revenue**: We are projecting no more than a 2% tuition increase each year. There is of \$1908 of course fees added to the program, \$318 for the six core welding courses, to help offset the cost of the course consumables.
3. **Grants and Contracts**: While the tuition and course fees are designed to cover the immediate costs of the program, additional grants and private donations are anticipated to assist with site overhead and infrastructure needs.
4. **Other Sources**: Other sources of revenue include Consolidated Fees, \$35 per credit hour, this fee helps cover the cost of the academic support center, student activities, technology and the general expenses of the college; Capitol Improvement fees, \$15 per registration transaction, this fee supplements county funds for facility improvements and equipment upgrades for projects that do

not meet the threshold for State funding; and Registration fees, \$10 per registration transaction, this fee defrays cost of clerical support and supplies for registration processing.

5. **Total Year:** *Program Resources and Narrative Rationale table on following page*

TABLE 1: RESOURCES

Resource Categories	Year 1	Year 2	Year 3	Year 4	Year 5
1. Reallocated Funds	\$0	\$0	\$0	\$0	\$0
2. Tuition/Fee Revenue (c + g below)	\$93,940	\$95,480	\$97,020	\$99,330	\$101,640
a. Number of F/T Students	\$0	\$0	\$0	\$0	\$0
b. Annual Tuition/Fee Rate	\$0	\$0	\$0	\$0	\$0
c. Total F/T Revenue (a x b)	\$0	\$0	\$0	\$0	\$0
d. Number of P/T Students ⁸	35	35	35	35	35
e. Credit Hour Rate	\$122	\$124	\$126	\$129	\$132
f. Annualized Credit Hour Rate	\$2,684	\$2,728	\$2,772	\$2,838	\$2,904
g. Total P/T Revenue (d x e x f)	\$93,940	\$95,480	\$97,020	\$99,330	\$101,640
3. Grants, Contracts & Other External Sources	\$0	\$0	\$0	\$0	\$0
4. Other Sources	\$94,605	\$94,605	\$94,605	\$94,605	\$94,605
TOTAL (Add 1 – 4)	\$188,545	\$190,085	\$194,605	\$193,935	\$196,245

The MIG & TIG Welding/Fabrication Certificate program can accommodate 35 students per year, students move through the training as a co-hort. All students participate in the program on a part time basis per the design of the program. Semesters range from one credit (summer) to a maximum of nine credits (Spring) with a 22 credit maximum for program completion.

⁸ All students attend on a PT basis.

We are projecting a tuition increase of no more than 2% per year. Other sources of revenue include Consolidated Fees⁹ of \$35/credit hour; Registration Fees¹⁰ of \$10 per registration transaction; and Capital Improvement Fees¹¹ of \$15 per registration transaction.

TABLE 2: PROGRAM EXPENDITURES:

Expenditure Categories	Year 1	Year 2	Year 3	Year 4	Year 5
1. Faculty (b + c below)	\$45,213	\$45,891	\$46,580	\$47,278	\$47,987
a. Number of FTE	0.75	0.75	0.75	0.75	0.75
b. Total Salary	\$42,000	\$42,630	\$43,269	\$43,918	\$44,577
c. Total Benefits	\$3,213	\$3,261	\$3,310	\$3,360	\$3,410
2. Admin. Staff (b + c below)	\$0	\$0	\$0	\$0	\$0
a. Number of FTE	\$0	\$0	\$0	\$0	\$0
b. Total Salary	\$0	\$0	\$0	\$0	\$0
c. Total Benefits	\$0	\$0	\$0	\$0	\$0
3. Support Staff (b + c below)	\$0	\$0	\$0	\$0	\$0
a. Number of FTE	\$0	\$0	\$0	\$0	\$0
b. Total Salary	\$0	\$0	\$0	\$0	\$0
c. Total Benefits	\$0	\$0	\$0	\$0	\$0
4. Technical Support and Equipment	\$0	\$0	\$0	\$0	\$0
5. Library	\$0	\$0	\$0	\$0	\$0
6. New or Renovated Space	\$0	\$0	\$0	\$0	\$0
7. Other Expenses	\$58,000	\$58,000	\$58,000	\$58,000	\$58,000
TOTAL (Add 1 – 7)	\$103,213	\$103,891	\$104,580	\$105,278	\$105,987

⁹ Other Sources: Consolidated Fee: The consolidated fee helps cover the cost of the academic support center, student activities, technology and the general expenses of the college. This fee also covers use of the physical education facilities and equipment which all students have access to.

¹⁰ Other Sources: Registration Fee: Defrays cost of clerical support and supplies for registration processing.

¹¹ Other Sources: Capital Improvement Fee: Supplements county funds for facility improvements and equipment upgrades. These projects do not meet the threshold for State funding.

The program will be implemented with existing administrative staff and campus resources. Campus resources are funded through the College's general operating budget each year. Salaries are forecasted to increase 1.5% each year, while health benefits are forecasted to increase 2.5% each year.

M. Adequacy of provisions for evaluation of program (as outlined in COMAR 13B.02.03.15),

The college uses a five-year internal program review process for all of its courses and its programs. Additionally, all courses are reviewed annually with student opinion surveys. All courses and programs will implement faculty developed and approved assessment plans to monitor student mastery of all identified course and program goals and student learning outcomes. Each program also makes use of a program advisory board with membership consisting of college faculty, administration, area business representatives, and local leaders from the skilled trades industry. This program is not evaluated by external entities.

N. Consistency with the State's minority student achievement goals (as outlined in COMAR 13B.02.03.05 and in the State Plan for Postsecondary Education).

Chesapeake College will use its ongoing outreach strategies to feeder high schools and to communities with high concentrations of minority populations. The College has a strong dual enrollment program which will be used to encourage early decisions about career goals and career exploration. Also the college, working in cooperation with the local county schools, has initiatives such as grow your own programs, community mentors, and new financial incentives, to recruit and retain more minority students. The college has an aggressive "early alert" system as part of its student retention initiatives.

O. Relationship to low productivity programs identified by the Commission:

This program is not related to low productivity programs identified by the Commission.

P. Adequacy of Distance Education Programs (as outlined in COMAR 13B.02.03.22)

Chesapeake College follows C-RAC guidelines for distance education.

Addendum

MIG & TIG Welding/Fabrication – Certificate Program

Faculty member:	Credentials:	Course(s) taught:
Kevin Blankenship	<ul style="list-style-type: none"> • NCCER Certified Core and Welding Instructor. • Certificates in pipe-fitting and pipe-welding. • Member of the American Welding Society • Eighteen years of experience in ornamental blacksmithing. 	<p>WEL 108 WEL 109 WEL 152 WEL 201 WEL 211 WEL 252</p>
Frank Weishaar	<ul style="list-style-type: none"> • Fifteen years of industrial experience in the welding field. • Former instructor for the Queen Anne's County High School welding program. • Experience as a quality inspector, supervisor, pipe welder, structural welder, and welding fabricator. • Certified AWS Certified Welding Inspector. • Certified in OSHA 30 Safety. • Boilermakers National Apprenticeship Program certificate. 	<p>WEL 221</p>