

WANTED: 75,000 Engineers!

By DEAN W. H. CARSON

War has brought sweeping changes in the engineering education picture at O.U. and in all other colleges

WAR has brought tremendous problems to America's colleges of engineering. There is an estimated shortage of 75,000 engineers in the industries of this nation, and the armed forces have called a great number of engineer reserve officers for vital and urgent services.

The engineering schools, therefore, are being called on to speed up the training of young engineers to fill this acute shortage. Special credit and non-credit courses were organized early in the defense program to prepare men for the armed services and for war industries, and the University of Oklahoma was one of the first to set up such special courses.

The special courses include several classifications:

1. Engineering, Science and Management Defense Training, under direction of R. V. James, institutional faculty representative, in co-operation with the Office of Education, Washington, D. C. These are non-credit, college grade courses, on such subjects as radio theory and technique, industrial accounting, engineering drawing, inspection and testing of metals, electricity and radio theory, industrial chemistry, physics, cost accounting, bombproof shelters, fundamentals of petroleum products, and trigonometry. These courses have been held in Norman, at Oklahoma City Junior College, Northeastern Junior College at Miami, Oklahoma Testing Laboratories at Ardmore, Muskogee, Will Rogers Bomber Base, and Bartlesville. Classes scheduled to start in late February and early March had a total enrolment of approximately five hundred before mid-February.

2. Civilian Pilot Training. Both primary and secondary training are given at Westheimer Flying Field near Norman. Each applicant is required to state intention of entering the Army or Navy Air Corps.

3. College Grade Defense Courses for



CLASSWORK IS ADAPTED TO WAR PROBLEMS
Architecture students of Herschel Elarth (right), study construction of underground hangars for protection of planes

Credit. These include two special courses in electrical engineering, Advanced Communication and Ultra-High Frequencies Techniques, which are offered at the request of the federal government. Other courses in this group include Specification Writing, Timber Engineering, and Air-Conditioning with special reference to hospitals.

4. Non-Credit, Technological Courses. These include a Welders Training Course and a Machine Tool Operators Course. The welders' course, which had an enrolment of 28 in early February, operates in the Engineering Laboratory Building from 8 a.m. to 10:30 p.m. daily. Trainees from this course are found in practically every ship-building plant on the West and Gulf coasts, and in many of the yards along the Atlantic Coast. More than 650 men have received training. The machine operators' course was started in August, 1940, in co-operation with the U.S. Office of Education. Fifty-nine men have completed the course, which lasts from twelve to sixteen weeks. Thirty-three of this number have gone to work in aircraft factories. A few are in the armed forces and most of the others are employed in private industry.

Efforts are being made at O.U. to speed up the regular engineering training program by offering engineering courses during the summer months, something which has not been customary in the past. Plans are being considered whereby funds might be obtained from the United States Department of Education to operate on a full schedule through the summer.

Demand for engineers is demonstrated by the great increase in employment opportunities for senior engineers. Ten years ago we thought we had a full employment program if, during the school year, representatives from as many as 15 industrial concerns called at our campus to recruit engineers. In those days most of the interviews took place during the latter part of April

and in May. We were well pleased with an interview if the personnel man offered employment to three graduating seniors.

Today is different. This year more than 15 industrial interviews were scheduled prior to the Christmas vacation period. We receive frequent letters, telegrams and phone calls seeking the services of our graduates. Most companies, instead of offering employment to one or two engineering seniors, have sought to recruit ten or fifteen. Recently a large airplane manufacturing plant which had previously employed our men made a flat offer to take our entire aeronautical and mechanical engineering graduating class. Also, a big concern in the East, operating numerous powder manufacturing plants, offered to take all of our graduates, with the exception of those with reserve officers' rating, and place them in a plant for a three-months training period and then promote them to supervisory engineering positions. In normal times it would probably require two years of service to receive such an opportunity for advancement.

Our interview calendar for the coming months is exceptionally heavy. The engineers of '42 can choose the type of work they like best. The salary range is also much higher than in the past.

The federal government has recognized the importance of providing more trained engineers for industry and for the armed forces. Local draft boards have been asked to consider seriously the deferment of students of draft age who are advanced students in engineering.

Lewis B. Hershey, national director of the selective service system, Washington, D. C., issued the following memorandum January 12, 1942: "The attention of local boards is again invited to the necessity of seriously considering for deferment students in certain specialized professional

(PLEASE TURN TO PAGE 31)

Wanted: 75,000 Engineers

(CONTINUED FROM PAGE 13)

fields in which dangerously low levels of manpower are found to exist. Subsequent to the declaration of war, local selective service agencies have in many instances proceeded to classify registrants without regard to the fact that they are in training or preparation for activities, the maintenance of which is essential to the national health, safety, or interest, and war production. This is particularly true in cases of engineering, chemical, physics, medical and dental students."

Mr. Hershey states further: "War industries are undergoing a hitherto unknown expansion. Aeronautical, civil, electrical, chemical, mining, metallurgical, mechanical, and radio engineers, together with physicists and chemists are essential to insure a sufficient flow of material for the armed forces, and industry must look to the engineering, chemical, and physics students now in training to meet their present and future requirements."

The Navy itself has adopted a long range plan for recruiting officer personnel from students now enrolled in engineering colleges throughout the country. With the nation involved in a war that covers the globe, the Navy is being expanded just as rapidly as possible, and qualified officers are a vital necessity. Under the Navy's plan, any junior or senior engineer making satisfactory scholastic progress and who can pass a physical examination may enlist in the Navy now on a probationary reserve status until he completes work for a degree. After graduation he will receive a commission as ensign in the Navy. Students who enrol while juniors will receive an intensive three-month training period between junior and senior years.

A comparison of the curriculum offered at the United States Naval Academy at Annapolis with that of the College of Engineering at the University of Oklahoma shows that the basic training is the same. It is the opinion of many that the United States will have to maintain a two-ocean Navy far into the future and that engineering students accepted for commission as ensigns now will in many cases continue naval work as a career after the close of World War II.

The increased demand for engineers is likely to continue even after the close of the war causes a decline in the special war industries. Most plants built now for the manufacture of war materials are designed with the object in mind that after the war they must be converted to make products for civilian needs.

Whether or not the industrial change-over is a success will be the direct responsibility of the engineer—and indirectly the responsibility of the school that trained him.

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