زبان تخصصی مهندسی مکانیک

قسمت ششم

۳-۱-۴- تنش تکیه گاهی در اتصالات **(BEARING STRESS IN CONNECTIONS)**

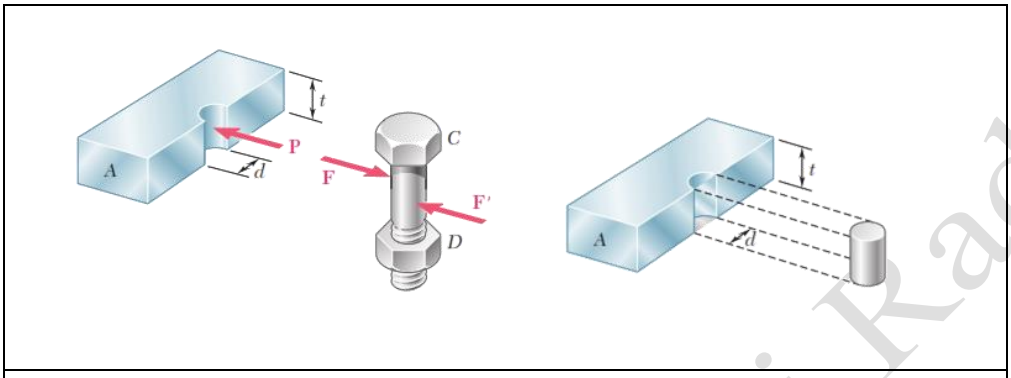

Figure 3 – 4 : bolt subjected to single shear

Since the distribution of these force and of the corresponding stresses is quite complicated, one uses in practice an average nominal value σ_B of the stress, called the bearing stress, (which is) obtained by dividing the load P by the area of the rectangle representing the projection of the bolt on the plate section. Since this area is equal to td , where t is the plate thickness and d the diameter of the bolt, we have:

$$\sigma_B = \frac{P}{A} = \frac{P}{td}$$

کلمه	معنی	کلمه	معنی
complicated	پیچیده	quite	کاملا
rectangle	مستطیل	nominal	اسمی
Strain	کرنش	projection	تصویر

۳-۲- تنش و کرنش-بارگذاری محوری **(Stress and Strain-Axial Loading)**

۳-۲-۱- مقدمه **(Introduction)**

Another important aspect of the analysis and design of structures relates to the deformations (which are) caused by the loads (which are) applied to a structure. Clearly, it is important to avoid deformations so large that they may prevent the structure from fulfilling the purpose for which it was intended. But the analysis of deformations may also help us in the determination of stresses. Indeed, it is not always possible to determine the forces in the members of a structure by applying only the principles of statics. This is because statics is based on the assumption of undeformable, rigid structures. By considering engineering structures as deformable and analyzing the deformations in their various members, it will be

possible for us to compute forces that are statically indeterminate, i.e., indeterminate within the framework of statics.

معنی	کلمه	معنی	کلمه
جنبه	aspect	بستگی داشتن	relate
تغییر شکل	deformation	اعمال کردن	apply
جلوگیری کردن	avoid	جلوگیری کردن	prevent
هدف	purpose	عمل کردن	fulfill
قانون، اصل	principle	تعیین کردن	determine
فرض، فرضیه	assumption	استوار است بر	based on
صلب	rigid	تغییر شکل ناپذیر	undeformable
نامعین	indeterminate	محاسبه کردن	compute
معنی می دهد، که	i.e. (id est)	چهارچوب	framework

Also, as we indicated in previous sections, the distribution of stresses in a given member is statically indeterminate, even when the force in that member is known. To determine the actual distribution of stresses within a member, it is thus necessary to analyze the deformations that take place in that member. In this chapter, you will consider the deformations of a structural member such as a rod, bar, or plate under axial loading.

First, the normal strain ε in a member will be defined as the deformation of the member per unit length. Plotting the stress σ versus the strain ε as the load applied to the member is increased will yield a stress-strain diagram for the material (which is) used. From such a diagram we can determine some important properties of the material, such as its modulus (ˈmɑːdʒələs) of elasticity, and whether the material is ductile or brittle.

معنی	کلمه	معنی	کلمه
تعریف کردن	define	واحد	unit
رسم کردن (نمودار)	Plot	دربرابر	Versus(V.S.)
منجر شدن(تسلیم)	yield	نمودار	diagram
الاستیک	elasticity	خاصیت	property
نرم(ماده)	ductile	ترد(ماده)	brittle